

# Gregory P. Thomas

Faculty of Education  
The University of Alberta  
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## Educational Qualifications

- PhD** Queensland University of Technology (Conferred 1999)  
*Thesis: Developing metacognition and cognitive strategies through the use of metaphor in a year 11 chemistry classroom*
- M.Ed.St.** Monash University (Conferred 1992)  
*Thesis: An investigation into the transfer of cognitive strategies*
- B.Ed.** James Cook University (Conferred 1988)

## Academic Appointments and Professional History

### Current Academic Appointments

- 2014 (July) – Present  
*Professor, Department of Secondary Education, The University of Alberta.*
- 2004 – Present  
*Visiting Professor, South China Normal University, Guangzhou, Peoples Republic of China.*

### Past Academic Appointments

- 2021 (July) – 2022 (June)  
*Chair, Department of Secondary Education, The University of Alberta.*
- 2018 (July) – 2019 (June)  
*Interim Chair, Department of Secondary Education, The University of Alberta.*
- 2007 (August) – 2014 (June)  
*Associate Professor, Department of Secondary Education, The University of Alberta.*
- 2005 (August) – 2007 (July)  
*Professor, Head of Department, Department of Mathematics, Science, Social Sciences and Technology. The Hong Kong Institute of Education (since May 27<sup>th</sup> 2016, The Education University of Hong Kong) (Professorial Title Conferred July 2006)*
- 2002 (September) – 2005 (August)  
*Associate Professor (Principal Lecturer), Head of Department, Department of Science, The Hong Kong Institute of Education.*
- 1999 (September) – 2002 (August)  
*Assistant Professor, Department of Curriculum Studies, Faculty of Education, The University of Hong Kong.*

## Invited Academic Appointments

- 2018 (March 15<sup>th</sup> – 16<sup>th</sup>) Invited Visiting Scholar, Chair of Review Committee (Bachelor of Arts [Honours] in Education for Sustainability), Education University of Hong Kong, Hong Kong SAR, China.
- 2017 (November 13<sup>th</sup> - 17<sup>th</sup>)  
Invited Visiting Scholar, Centre for Teaching Development and Digital Media, Aarhus University, Denmark.
- 2016 (June 10<sup>th</sup>)  
Invited Teaching Appointment, Mahidol University, Thailand.
- 2016 (June 9<sup>th</sup>)  
Invited Teaching Appointment, Srinakharinwirot University, Thailand.
- 2015 (October 12<sup>th</sup> – 14<sup>th</sup>)  
Invited Visiting Scholar, Chair of Review Committee (Mathematical Sciences Cluster of 4 University Departments), University of Pretoria, South Africa.
- 2015 (April 26<sup>th</sup> – 27<sup>th</sup>)  
Invited Visiting Scholar, Khon Kaen University, Thailand.
- 2013 (August 15<sup>th</sup> – 21<sup>st</sup>)  
Invited Visiting Scholar, Khon Kaen University, Thailand.
- 2011 (October 24<sup>th</sup> – November 4<sup>th</sup>)  
Invited Visiting Scholar, The University of the Free State, South Africa.
- 2011 (October 24<sup>th</sup> – November 4<sup>th</sup>)  
Invited Teaching Appointment, Khon Kaen University, Thailand.
- 2010 (July 8<sup>th</sup> - 15<sup>th</sup>)  
Invited Visiting Researcher, The Hong Kong Institute of Education, Hong Kong.
- 2010 (June 11<sup>th</sup> - 13<sup>th</sup>)  
Invited Teaching Appointment, Khon Kaen University, Thailand.
- 2009 (September 14<sup>th</sup> - 16<sup>th</sup>)  
Invited Teaching Appointment, Khon Kaen University, Thailand.
- 2007 (March 19<sup>th</sup> - 23<sup>rd</sup>)  
Invited Visiting Researcher, The University of British Columbia, Canada.
- 2006 (May 29<sup>th</sup> – June 2<sup>nd</sup>)  
Invited Visiting Researcher, The University of British Columbia, Canada.
- 2006 (April 21<sup>st</sup> – 23<sup>rd</sup>)  
Invited Teaching Appointment, South China Normal University, China.
- 2006 (March 27<sup>th</sup> – April 1<sup>st</sup>)  
Invited Visiting Researcher, The University of British Columbia, Canada.
- 2005 (May 19<sup>th</sup> – 20<sup>th</sup>)  
Invited Teaching Appointment, South China Normal University, China.
- 2005 (April 24<sup>th</sup> – 29<sup>th</sup>)  
Invited Visiting Researcher, The University of British Columbia, Canada.

## Honorary Academic Appointments

- 2005 – present  
*Director*: Hong Kong and Guangzhou Centre for Environmental and Science Education Research Centre, South China Normal University, Guangzhou, China.
- 2002 – 2004  
*Honorary/Adjunct Assistant Professor*, The University of Hong Kong.

## Awards

- 2023: International Conference on Open and Innovative Education, Hong Kong.  
Excellent Paper Award, for Thomas, G. P., 2023.  
*Developing Open Educational Resources to Increase Access to Information Regarding Metacognition.*

2021: Larry Beauchamp Senior Researcher Award: Faculty of Education, The University of Alberta.

2017: International Conference on Open and Innovative Education, Hong Kong.  
Best Paper Award, for Thomas, G. P., & Meldrum, A., 2017.  
*Enhancing the learning environment of undergraduate physics laboratories to stimulate students' scientific inquiry processes.*

2011: American Educational Research Association, Special Interest Group on the Study of Learning Environments: Outstanding Paper Award, for Thomas, G. P., & Anderson, D., 2010.  
*Changing the metacognitive orientation of a classroom environment to enhance students' metacognition regarding chemistry learning.*

2000: American Educational Research Association, Special Interest Group on the Study of Learning Environments: Outstanding Paper Award, for McRobbie, C. J., & Thomas, G. P., 1999.  
*Changing the learning environment to enhance explaining and understanding in a Year 11 chemistry classroom.*

1996: National Excellence in Teaching Award: Queensland Secondary Schools (Australia).

#### Professional Designations

1993 – Present  
Registered teacher: Queensland College of Teachers (No. 762969)  
1992 – 2023  
Member: Australian College of Educators (MACE)

#### Professional Experience

1997 (March) – 1999 (August)  
Senior Research Assistant and Part-time Lecturer,  
School of Mathematics, Science and Technology Education, Faculty of Education,  
Queensland University of Technology, Brisbane, Australia.\

1997  
Part-time Curriculum Visitor for School Experience  
Faculty of Education, Australian Catholic University, Brisbane, Australia.

1993 – 1997 (March)  
Head of Science Department: Senior Science Teacher, Immanuel College, Maroochydore, Australia.

1989 – 1992  
Senior Science Teacher (Head of Science Department, 1992), Xavier College, Melbourne, Australia.

1988  
Science Teacher, Canberra Boys Grammar School, Canberra, Australia.

## **GRANTS AND FUNDING: Total Funds Obtained ~ CAN\$1,320,480**

### **Research Funding**

#### **External Sources**

*Using audio podcasts and supporting text materials to stimulate metacognitive experiences in pre-service science teachers regarding metacognition and its development.*

Principal/Sole Investigator. Funded by the Social Science and Humanities Research Council (Canada). (2021-2023). (CAN\$53,352).

*Alberta Journal of Educational Research: Aid to Scholarly Journals.* Principal/Sole Investigator. Funded by the Social Science and Humanities Research Council (Canada). (2012-2016). (CAN\$89,370).

*Using metaphor to develop metacognition in relation to scientific inquiry in high school science laboratories.* Principal Investigator (with Dr. David Anderson, Co-I, University of British Columbia). Funded by the Social Science and Humanities Research Council (Canada). (2008-2011). (CAN\$101,000).

*Metacognition and reflective inquiry: Understanding learning across contexts.* Collaborator (with Dr. David Anderson, P-I, and Dr. Samson Nashon, Co-I, University of British Columbia). Funded by the Social Science and Humanities Research Council (Canada). (2004-2007). (CAN\$169,000).

### **Grants for Teacher and Educational Development**

*Thinking Skills and Thinking Research School Project.* (Thomas, G. P., Co-Investigator, with Dr. Warawun Chantharanuwong, Leader, and others). Funded by Khon Kaen Secondary Education Authority, Thailand. (2016). (\$11,300).

*Improving students thinking skills and conducting research about their thinking to enhance their achievement including all of the academic sections of Khon Kaen Secondary Education.* (Thomas, G. P., Co-leader, with Dr. Warawun Chantharanuwong, Leader, and others). Funded by Khon Kaen Secondary Education Authority, Thailand. (2014-2016). (\$45,000).

*Professional Development Programme in Teaching and Learning Liberal Studies in the area of Study "Science, Technology and the Environment"* (Thomas, G. P., Programme Leader). Funded by the Hong Kong Education Department, Education & Manpower Bureau. (2006/2007). (HK\$479,184)

*Professional Development Programme in Teaching and Learning Liberal Studies in the area of Study "Science, Technology and the Environment"* (Thomas, G. P., Programme Leader). Funded by the Hong Kong Education Department, Education & Manpower Bureau. (2006). (HK\$319,470)

*Professional Development Programme for teachers of Liberal Studies: "Critical Thinking with the Issue Inquiry Approach"* (Thomas, G. P., Programme Leader). Funded by the Hong Kong Education Department, Education & Manpower Bureau. (2005). (HK\$152,950)

*Secondary Teaching Evaluation and Mentoring (STEM) Project.* (HK\$ 4.6 million (Co-investigator: with Prof Anna Kindler (Principal Investigator), Dr. Ko Po-yuk, Dr. Sze Chong

Lap, Mr. Alberto Cruz, Mrs. Ruth Yu, Dr. Eliza Au, and Dr. K. S. So). Funded by the Quality Education Fund, Hong Kong Government. (2003-2005). (HK\$4,600,000 -approx. CAN\$580k)

*Development of the Learning Outcomes Framework in the Science Education Key Learning Area.* (Thomas, G. P., & Cheng, M-H, M., Principal Investigators) Funded by the Hong Kong Education Department, Education & Manpower Bureau. (2003-2004). (HK\$753,231)

### **Internal Sources**

#### **Research Funding**

*Developing Graduate Education Students' Metacognition Regarding Their Use of Citations.* The University of Alberta: Teaching and Learning Enhancement Fund. (Principal Investigator, with Co-Investigators: D. Feisst & V. Pow) (2019-2020). (CAN\$8,800).

*Pre-Service Science Teachers' Personal Metacognitive Knowledge.* Centre for Mathematics, Science & Technology Education, The University of Alberta. Principal Investigator. (2017) (CAN\$4,767)

*Transforming the Undergraduate Physics Laboratory: A Guided Inquiry Approach.* The University of Alberta: Teaching and Learning Enhancement Fund. Co-Investigator responsible for project research and evaluation: with A. Meldrum (Principal Investigator) and J. Beamish (Co-I). (2011-2014). (CAN\$137, 579).

*Science Teacher Metacognition: Initial Investigations.* The University of Alberta: Support for the Advancement of Scholarship Fund. Principal Investigator. (2011) (CAN\$5,645)

*Investigating the development of students' creative problem solving (CPS) strategies within a science education context – A progressive and integrated approach.* Hong Kong Institute of Education, Co-Investigator, with Dr Cheng Mo-yin, Vivian. (2005-2006) (HK\$126,000)

*Development of an Environmental Citizenship Scale for assessing the environmental attitudes and behaviour of primary students.* The Hong Kong Institute of Education, Co-Investigator, with Dr. Eric Tsang. (2003-2004). (HK\$ 90,000)

*Evaluating the metacognitive orientation of secondary school science classroom learning environments: Developing a three systems perspective to inform reform of Hong Kong science classroom learning environments.* The Hong Kong Institute of Education, Principal Investigator. (2003-2004) (HK\$173,558)

*Promoting students' metacognition through the development of an empowering perspective of learning and a language for learning in primary school students.* The Hong Kong Institute of Education, School of Foundations in Education: School Projects and Initiatives Funding Committee, Principal Investigator, with Dr. Au, D. K-M. (2002/2003). (HK\$108,952)

*The development of, validation of, and interpretation of findings from the use of a classroom environment instrument for assessing the metacognitive orientation of high school science classrooms.* The University of Hong Kong, Principal Investigator. (2000-2001) (HK\$95,000)

## **RESEARCH AND SCHOLARSHIP**

### **Area(s) of Research Expertise**

- Science/Chemistry/Physical Sciences Education
- Metacognition
- Learning Environments
- Research Methodology/ies

### **Publications**

*SUMMARY (Total = 86)*

Books – 1  
 Chapters in books – 18  
 Articles in refereed journals – 38  
 Editor of Special Editions of refereed journals – 1  
 Multi-media productions and publications – 5  
 Papers in refereed conference proceedings - 15  
 Papers in non-refereed conference proceedings - 2  
 Edited Conference Proceedings - 1  
 Executive Reports - 3  
 Bibliographies - 1  
 Non-refereed articles - 1

#### ***Books***

Thomas, G. P., & Boon, H. J. (Eds.) (2023). *Challenges in science education: Global perspectives for the future*. New York: Palgrave Macmillan.

#### ***Chapters in Books***

Thomas, G. P. (2023). Who are the students in metacognition research in high school science education? Reflections on ecological validity, representative design, and generalizability. In S. Larkin (Ed.), *Metacognition in education: Future trends* (pp. 28-44). London, UK: Routledge.

Thomas, G. P. (2023). Instruction for metacognition in science classrooms: Harsh realities, and a way forward, In G. P. Thomas and H. J. Boon (Eds.), *Challenges in science education: Global perspectives for the future* (pp. 251-277). New York: Palgrave Macmillan.

Thomas, G. P. & Boon, H. J. (2023). Introduction: So many challenges; so many choices (In science education). In G. P. Thomas & H. J. Boon (Eds.), *Challenges in science education: Global perspectives for the future*, (pp. 1-14). New York: Palgrave Macmillan.

Couteret, L., King, C., & Thomas, G. P. (2018). Bridging the gap between theory and practice in science education: Really? When? How? Why? In D. C. Young, W. L. Kraglund-Gauthier and T. G. Ryan (Eds.), *Readiness for the Field: Perspectives from within the Triangle of Teacher Education* (pp. 35-55). Champaign, IL: Common Ground.

Thomas, G. P. (2017). What is and What Will be Science Learning (Theory) in Science Education Reform and Practice? Stories and Reflections. In J. Jagodzinski (Ed.), *The precarious future of education: Risk and uncertainty in ecology, curriculum, learning and technology* (pp. 139-158). New York: Palgrave Macmillan.

Thomas G. P. (2015). Metacognition and Science Learning. In R. Gunstone (Ed.), *Encyclopedia of Science Education* (pp. 632–634). Springer Dordrecht, Heidelberg, New York, London. DOI 10.1007/978-94-007-2150-0\_343

Thomas, G. P. (2012). Metacognition in Science Education: Past, present and future considerations. In B. J. Fraser, K. G. Tobin, and C. J. McRobbie (Eds.), *Second International Handbook of Science Education* (pp. 131-144). Dordrecht: Springer.

- Thomas, G. P. (2012). The Metacognitive Science Teacher: A statement for enhanced teacher cognition and pedagogy. In F. Ornek and I. Saleh (Eds.), *Contemporary Science Teaching Approaches: Promoting Conceptual Understanding in Science* (pp. 29-53). Charlotte, NC: Information Age Publishing.
- Thomas, G. P. (2009). The centrality of metacognition for science education reform: Challenging the status quo. In A. Kuroda, P. Tanunchaibutra, D., Ya-ampan, O. Namwong, S. Bhiasiri, and J. Thongpai (Eds.), *Learning communities for sustainable development* (pp. 17-30). Khon Kaen, Thailand: Anna Offset.
- Thomas, G. P. (2009). Metacognition or not: Confronting hegemonies. In I. M. Saleh and M. S. Khine (Eds.), *Fostering Scientific Habits of Mind: Pedagogical Knowledge and Best Practices in Science Education* (pp. 83-106). Rotterdam: Sense Publishers.
- Wei, B., & Thomas, G. P. (2007). The Post-Mao Junior Secondary School Chemistry Curriculum in the People's Republic of China: A Case Study in the Internationalization of Science Education. In Atweh, W., *et al.* (Eds.), *Internationalisation and Globalisation in Mathematics and Science Education*, (pp. 487-507). London: Springer.
- Thomas, G. P. (2006). Metaphor, Students' Conceptions of Learning and Teaching, and Metacognition. In P. Aubusson, A. Harrison and S. M. Ritchie, (Eds.), *Metaphor and Analogy in Science Education*, (pp. 105-117). Dordrecht: Springer.
- Thomas, G. P. (2003). "迎接創意教學的挑戰：危機及疑慮的處理" [Accepting the challenge of teaching creatively: Dealing with risk and uncertainty.] In Cheng, M-y. (Ed.), *Development of Creativity in Teaching* (pp. 45-53). Hong Kong: Ming Pao Publications. (In Chinese).
- Thomas, G. P. (2002). The social mediation of metacognition. In D. McInerney, & S. Van Etten (Eds.), *Sociocultural Influences on Motivation and Learning: Vol. 2. Research on Sociocultural Influences on Motivation and Learning* (pp. 225-247). Greenwich, CT: Information Age Publishing.
- Thomas, G. P., & McRobbie, C. J. (2001). Changing teachers' and students' classroom practices. In J. Zajda (Ed.), *Education and Society* (3<sup>rd</sup> ed.) (pp. 168-182). Melbourne: James Nicholas.
- Thomas, G. P., & McRobbie, C. J. (2001). A case study of one teacher's attempts to improve student reasoning in a chemistry classroom. In D. Psilos, P. Kariotoglou, V. Tselves, G. Bisdikian, G. Fassoulopoulos, E. Hatzukraniotis, & M. Kallery (Eds.), *Science Education in the Knowledge Based Society* (pp. 655-657). Thessaloniki: Aristotle University of Thessaloniki.
- Thomas, G. P., McRobbie, C. J., & English, L. D. (1999). Using metaphors for learning to develop metacognition in chemistry students. In M. Bandiera, S. Caravita, E. Torracca, & M. Vicentini (Eds.), *Research in Science Education in Europe* (pp. 81-87). Dordrecht, The Netherlands: Kluwer.
- McRobbie, C. J., & Thomas, G. P. (1998). Bridging the gap between promise and practice: The use of Microcomputer based learning in senior chemistry. In D. M. Druskovich, & G. T. Klease (Eds), *Bridging the gap* (pp. 141-146). Rockhampton: Central Queensland University Publishing Unit.

### **Articles in Refereed Journals**

- Thomas, G. P., & Chantharanuwong, W. (2022). Factor structure and dimensionality of an instrument designed to measure the metacognitive orientation of Thai science classroom learning environments. *International Journal of Educational Methodology*, 8(4), 805-818. doi: 10.12973/ijem.8.4.805

- Thomas, G. P. (2018). Looking back: Wondering forward. *Alberta Journal of Educational Research*, 64(3), i-ii.
- Thomas, G. P., & Meldrum, A. (2018). Students' perceptions of changes in the learning environments of undergraduate physics laboratories. *Interactive Technology and Smart Education*, 15(2), 165-180.
- Thomas, G. P. (2017). "Triangulation:" An expression for stimulating metacognitive reflection regarding the use of 'triplet' representations for chemistry learning. *Chemistry Education Research and Practice*, 18(4), 533-548.
- Zhao, Z., & Thomas, G. P. (2016). Mainland Chinese students' conceptions of learning science: A Phenomenographic Study in Hebei and Shandong Provinces. *International Journal of Educational Research*, 75, 76-87.
- Thomas, G. P. (2016). Metacognition in Science Education: Considering cultural and contextual orientations. *Alberta Science Education Journal*, 44(2), 4-15.
- Anderson, D., & Thomas, G. P. (2014). 'Prospecting for Metacognition' in a science museum – A metaphor reflecting hermeneutic inquiry and questioning into metacognition in a new context. *Issues in Educational Research*, 24(1), 1-20.
- Thomas, G. P., & Anderson, D. (2014). Changing the Metacognitive Orientation of a Classroom Environment to Enhance Students' Metacognition Regarding Chemistry Learning. *Learning Environments Research*, 17(1), 139-155.
- Thomas, G. P., Meldrum, A., & Beamish, J. (2013). Conceptualization, development and validation of an instrument for investigating elements of undergraduate physics laboratory learning environments: The UPLLES (Undergraduate Physics Laboratory Learning Environment Survey). *European Journal of Physics Education*, 4(4), 28-40.
- Thomas, G. P. (2013). The interview as a metacognitive experience for students: Implications for practice in research and teaching. *Alberta Science Education Journal* 43(1), 4-11.
- Thomas, G. P. (2013). Changing the metacognitive orientation of a classroom learning environment to stimulate metacognitive reflection regarding the nature of physics learning. *International Journal of Science Education*, 35(7), 1183-1207.
- Thomas, G. P., & McRobbie, C. J. (2013). Eliciting Metacognitive Experiences and Reflection in a Year 11 Chemistry Classroom: An Activity Theory Perspective. *Journal of Science Education and Technology*, 22(3), 300-313. doi: 10.1007/s10956-012-9394-8
- Thomas, G. P., & Anderson, D. (2012). Parents' Metacognitive Knowledge: Influences on Parent-Child Interactions in a Science Museum Setting. *Research in Science Education*, 43(3), 1245-1265. doi: 10.1007/s11165-012-9308-z
- Thomas, G. P. (2010). Contemplating the meaning of 'good' educational research: A challenge for education researchers and editorial boards. *International Journal of Education*, 33(2), 1-2.
- Thomas, G. P., & Skamp, K. (2009). Cam McRobbie: A man for all occasions. *Cultural Studies of Science Education*, 4(2), 335-344.
- Anderson, D., Thomas, G. P., & Nashon, S. (2009). Social barriers to meaningful engagement in biology field trip group work. *Science Education*, 93(3), 511-534.
- Anderson, D., Nashon, S., & Thomas, G. P. (2009). Evolution of research methods for probing and understanding metacognition. *Research in Science Education*, 39(2), 181-195.
- Thomas, G. P., Anderson, D., & Nashon, S. (2008). Development of an instrument designed to investigate elements of students' metacognition, self-efficacy and learning processes: The SEMLI-S. *International Journal of Science Education* 30(13), 1701-1724.
- Wei, B., & Thomas, G. P. (2006). An examination of the change of the JSSCC of the P.R. China from 1978 to 2001: In the view of scientific literacy. *Research in Science Education*, 36(4) 403-418.
- Thomas, G. P. (2006). Metacognition and science education: Pushing forward from a solid foundation. *Research in Science Education*, 36(1-2), 1-6.



- Thomas, G. P. (2006). An investigation of the metacognitive orientation of Confucian-heritage culture and non-Confucian heritage culture science classroom learning environments in Hong Kong. *Research in Science Education*, 36(1-2), 85-109.
- Thomas, G. P., & Au, D. K-M. (2005). Changing the learning environment to enhance students' metacognition in Hong Kong primary school classrooms. *Learning Environments Research*, 8(3), 221-243.
- Wei, B., & Thomas, G. P. (2005). Rationale and approaches for embedding scientific literacy into the new junior secondary school chemistry curriculum in the P. R. China. *International Journal of Science Education*, 27(12), 1477-1493.
- Wei, B., & Thomas, G. P. (2005). Explanations for the transition of the junior secondary school chemistry curriculum in the P. R. China during the period from 1978 to 2001. *Science Education*, 89(3), 451-469.
- Thomas, G. P. (2004). Dimensionality and construct validity of an Instrument Designed to Measure the Metacognitive Orientation of Science Classroom Learning Environments. *Journal of Applied Measurement*, 5(4), 367-384.
- Thomas, G. P., Fong, P., M-W., & Tsang, E, P-K. (2004). Students' perceptions of early experiences with microcomputer-based laboratories (MBL). *British Journal of Educational Technology*, 35(5), 669-671.
- Anderson, D., Thomas, G. P., & Ellenbogen, K. M. (June 2003). Learning science from experiences in informal contexts: The next generation of research. *Asia-Pacific Forum on Science Learning and Teaching*, 3(3). Available at [http://www.ied.edu.hk/apfslt/v4\\_issue1/](http://www.ied.edu.hk/apfslt/v4_issue1/)
- Thomas, G. P. (2003). Conceptualisation, development and validation of an instrument for evaluating the metacognitive orientation of science classroom learning environments: The Metacognitive Orientation Learning Environment Scale - Science (MOLES-S). *Learning Environments Research*, 6(2), 175-197.
- Thomas, G. P. (2002, December). Some questions with no easy answers. *Asia-Pacific Forum on Science Learning and Teaching*, 3(2). Available at [http://www.ied.edu.hk/apfslt/v3\\_issue2/foreword/](http://www.ied.edu.hk/apfslt/v3_issue2/foreword/)
- Thomas, G. P., & McRobbie, C. J. (2002). Investigating chemistry students' learning about the relationship between the temperature and the pressure of a gas using a microcomputer-based laboratory (MBL): A word of caution. *Canadian Journal of Science, Mathematics and Technology Education*, 2(3), 321-338.
- Thomas, G. P., & McRobbie, C. J. (2002). Collaborating to enhance student reasoning: Frances' account of her reflections while teaching chemical equilibrium. *International Journal of Science Education*, 24(4), 405-423.
- Thomas, G. P., & McRobbie, C. J. (2001). Using a metaphor for learning to improve students' metacognition in the chemistry classroom. *Journal of Research in Science Teaching*, 38(2), 222-259.
- Thomas, G. P. (2001). Toward effective computer use in high school science education: Where to from here? *Education and Information Technologies*, 6(1), 29-41.
- McRobbie, C. J., & Thomas, G. P. (2000). Changing the learning environment to enhance explaining and understanding in a Year 12 chemistry classroom. *Learning Environments Research*, 3(3), 209-227.
- McRobbie, C. J., & Thomas, G. P. (2000). Epistemological and contextual issues in the use of microcomputer-based laboratories in a Year 11 Chemistry classroom. *Journal of Computers in Mathematics and Science Teaching*, 19(2), 137-160.
- Thomas, G. P., & C. J. McRobbie. (1999). The potential of metaphor for investigating and reforming teachers' and students' classroom practices. *Educational Practice and Theory*, 21(2), 87-102.

- Thomas, G. P. (1999). Student restraints to reform: Conceptual change issues in enhancing students' learning processes. *Research in Science Education*, 29(1), 89-109.
- Thomas, G. P., & McRobbie, C. J. (1999). Using metaphors to probe students' conceptions of learning. *International Journal of Science Education*, 21(6), 667-685.

### ***Special Editions of Refereed Journals***

- Thomas, G. P. (Ed.). (2006). Metacognition and science education (Special Issue). *Research in Science Education*, 36(1-2).

### ***Multi-media Productions and Publications***

- Thomas, G. P. (Developer and Producer). (2021- present). *Metacognition Online* [Website]. <https://metacognition.ca>
- Thomas, G. P. (Producer & Host). (2020 – present). *The Metacognition Channel* [Audio Podcast: 4 episodes to date]. Podbean. <https://metacognition.podbean.com/>
- Thomas, G. P., Feisst, D., & Pow, V. (Presenters) & Watson, E. (Producer). Festival of Teaching & Learning 2020 Episode 1: Metacognition and Citations. (2020, November, 10) Retrieved from [https://www.podomatic.com/podcasts/teachingplus/episodes/2020-11-10T11\\_19\\_49-08\\_00](https://www.podomatic.com/podcasts/teachingplus/episodes/2020-11-10T11_19_49-08_00)
- Thomas, G. P. (Presenter) & Haave, N. (Producer). *Metacognition in the classroom* [Audio Podcast]. (2020, February, 18) Retrieved from [https://www.podomatic.com/podcasts/teachingplus/episodes/2020-02-18T09\\_00\\_01-08\\_00](https://www.podomatic.com/podcasts/teachingplus/episodes/2020-02-18T09_00_01-08_00)
- den Heyer, K. (Presenter) & Thomas, G. P. (Producer). Thinking about citations: A conversation with Professor Kent den Heyer [Podcast]. (2019, September, 27) Retrieved from [https://era-av.library.ualberta.ca/media\\_objects/4x51hj87d](https://era-av.library.ualberta.ca/media_objects/4x51hj87d)
- Watt, B. (Presenter) & Thomas, G. P. (Producer). Thinking about citations: A conversation with Professor Bonnie Watt [Podcast]. (2019, September, 27) Retrieved from [https://era-av.library.ualberta.ca/media\\_objects/4x51hj87d](https://era-av.library.ualberta.ca/media_objects/4x51hj87d)

### ***Papers in refereed conference proceedings***

- Thomas, G. P. (2022). Developing Open Educational Resources to Increase Access to Information Regarding Metacognition. In E. Tsang et al., (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2023)* (pp. 823-837). Hong Kong Metropolitan University: HKSAR, China.
- Thomas, G. P. (2022). Students' response to the direct teaching of cognitive strategies. In E. Tsang et al., (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2022)* (pp. 263-273). Hong Kong Metropolitan University: HKSAR, China.
- Thomas, G. P., Feisst, D., & Pow, V. (2021). Podcasts as metacognitive prompts: A case study of graduate students' metacognition regarding citations. In E. Tsang, K. C. Li and Wang, P. (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2021)* (pp. 328-339). Open University of Hong Kong: HKSAR, China.
- Thomas, G. P. (2020). Exploring Practicing and Pre-service Teachers' Procedural Metacognitive Knowledge: Initial Findings and Potential Implications. In Levrini, O. & Tasquier, G. (Eds.), *Electronic Proceedings of the ESERA 2019 Conference. The beauty and pleasure of understanding: engaging with contemporary challenges through science education*, Strand 3 (co-ed. Fechner, S. & Verhoeff, R.) (pp. 367 - 373). Bologna: ALMA MATER STUDIORUM – University of Bologna. 978-88-945874-0-1/978-88-945874-0-1

- Thomas, G. P. (2020). Adopting a Reflexive Disposition as a Teacher<+>Researcher to Reconceptualize a Science Teacher Education Course. In E. Tsang, K. C. Li and Wang, P. (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2020)* (pp. 1-14). Open University of Hong Kong: HKSAR, China.
- Thomas, G. P. (2019). Informing a metacognitive orientation in university science teacher education. In K. C. Li and E. Tsang (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2019)* (pp. 161-171). Open University of Hong Kong: HKSAR, China.
- Thomas, G. P. (2018). Calibration of a scale for exploring the learning environment of undergraduate physics laboratories. In K. C. Li and E. Tsang (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2018)* (pp. 431-443). Open University of Hong Kong: HKSAR, China.
- Thomas, G. P., & Meldrum, A. (2017). Enhancing the learning environment of undergraduate physics laboratories to stimulate students' scientific inquiry processes. In K. C. Li and E. Tsang (Eds), *Proceedings of the International Conference on Open and Innovative Education (ICOIE 2017)* (pp. 203-215). Open University of Hong Kong: HKSAR, China.
- Chantharanuwong, W., Buaraphan, K., Thomas, G. P., Ruangsawan, C., Booncerd, K., Anankaphan, S., & Sumida, M. (2016). Supporting Science Learning through the Enhancing Students' Thinking Skills and Teachers' Thinking Research Project. *Proceedings of the 4<sup>th</sup> International Conference for Science Educators and Teachers: ISET 2016* (pp. 305-313). Khon Kaen University, Khon Kaen, Thailand, June 3-5, 2016.
- Thomas, G. P., Meldrum, A., & Beamish, J. (2014). Transforming the Learning Environment of Undergraduate Physics Laboratories to Enhance Physics Inquiry Processes. *Proceedings of the 2013 International Conference on Physics Education* (pp. 621-628). Prague, Czech Republic, August 5-9, 2013.
- Chantharanuwong, W., Thathong, K., Yuenyong, C., Buaraphan, K. & Thomas, G. P. (2014). The Current Situation of Students' metacognition of the High School Science Classrooms in Thailand. *Proceedings of the 2013 International Conference on Physics Education* (pp. 153-159). Prague, Czech Republic, August 5-9, 2013.
- Anderson, D., & Thomas, G.P. (2012). *Parents' metacognitive knowledge on their interactions with their children in a science museum*. Published proceedings of the STEM 2012 Conference (pp. 284-289). Beijing, China, November 24-28, 2012.
- Chantharanuwong, W., Thatthong, K., Yuenyong, C., & Thomas, G. P. (2012). Exploring the metacognitive orientation of the science classrooms in a Thai context. *Procedia – Social and Behavioral Sciences (4th World Conference on Educational Sciences, February 2012, Barcelona, Spain)*, 46, 5116-5123.
- Chantharanuwong, W., Thatthong, K., Yuenyong, C., & Thomas, G. P. (2011). *Exploring student metacognition in science, technology, society, and environment issues in a Thai Context*. In J. Kim, J. Park, H-A. Seo, J-A. Lee, and J. Kim (Eds). *Lighting the World With Science: Proceedings of the 2011 Conference of the East-Asian Association for Science Education*. Chosun University, Gwangju, South Korea.
- Thomas, G. P. (2011). A new science future, a new science teacher: Teacher metacognition as a priority in science teacher education. In P. Saihong and L. Mungkumchaw (Eds.), *Equity in Education: Proceedings of The 4<sup>th</sup> International Conference on Educational Reform* (pp. 70-83). Mahasarakham, Thailand: Mahasarakham University.

### ***Papers in non-refereed conference proceedings***

- Thomas, G. P. (2002). Conceptualising metacognitively oriented learning environments: Insights from research. In D. W. K. Chan, & W. Y. Yu (Eds.), *Thinking Qualities Initiative Conference Proceedings 2001 & 2002* (pp. 311-326). Hong Kong Baptist University: Hong

Kong Society for the Advancement of the Learning and Teaching of Thinking.  
Thomas, G. P. (2002). The language of higher-order thinking: Developing students' metacognition in science classrooms. In K. S. Volk, & Winnie S-W. (Eds.), *Science and Technology Education Proceedings* (pp. 95-99). Hong Kong: Hong Kong Printing Department.

### ***Edited Conference Proceedings***

Volk, K., So, S-w. W., & Thomas, G. P. (Eds.). (2001). *Enhancing the quality of life through science and technology: Proceedings of the 2000 Science and Technology Education Conference* (458p). Hong Kong: Curriculum Development Institute.

### ***Executive Reports***

Thomas, G. P., & Kim, J. H. (2018, May 1). (Bachelor of Arts [Honours] in Education for Sustainability: Review Panel Report. Hong Kong SAR, China: Education University of Hong Kong.  
Thomas, G. P. (2015, December 9). University of Pretoria 'Mathematical Sciences Cluster' Review: Executive Summary. (10 pages). Pretoria: University of Pretoria.  
Thomas, G. P., & Cheng, M-H. (2005). Development of the Learning Outcome Framework in the Science Education Key Learning Area: Final Report. (312 pages). Hong Kong: Hong Kong Government.

### ***Bibliographies***

Thomas, G. P. (2020, May 15<sup>th</sup>). A bibliography on metacognition (and some related topics). Available at <https://doi.org/10.7939/r3-t5ay-w140> or on request via email.

### ***Non-refereed Articles***

Thomas, G. P. (1994). Breaking down the barriers to the teaching of thinking strategies. *Independence*, 20(2), 41-44.

### ***Media Contributions***

(2020, December 11). *Students' grades are dropping with shift to remote education as coronavirus pandemic takes toll*. The Globe and Mail.  
(2020, September 2). *Remote learning*. CHQR 770 Calgary, Radio Interview.  
(2017, June 7). No summer vacation? Research says school would be better without it. Cantech Letter <http://www.cantechletter.com/2017/06/canada-ditch-school-summer-break-research-says/> Expert opinion.  
(2016, September 14). Appearance on CTV 'Dinner Television,' on homework topic.  
(2016, September 7). *Homework*. 570 News Kitchener, Ontario, Radio Interview with Jennifer Campbell on the morning show.  
(2016, September 6). *A new homework season for local students*. 570 News Kitchener, Ontario, Radio Interview with Eric Drozd.  
(2016, September 5). *No homework? No problem, some Alberta teachers say*. National Post.  
(2016, August 31). *Expert says children receiving too much homework*. 660 News Calgary, Radio Interview.

(2016, August 29). *To assign homework or not?* CBC Edmonton, Radio Interview.  
 (2016, August 25). *Letter from teacher over homework going viral*. CTV Edmonton, TV interview.

(2007, February 22). Institute heard of meddling in November. *South China Morning Post*; Hong Kong.  
 (2007, February 22). Two council members feud over interference on HKIEd. *Hong Kong Economic Times, Hong Kong*.  
 Thomas, G. P. (2006, April 27). Look to the workplace. *Letters to the Editor, South China Morning Post*; Hong Kong.  
 Thomas, G. P. (2002, Nov. 2). On the path to stagnation. *South China Morning Post, Education Section (P5)*; Hong Kong.

## Conference Presentations

*SUMMARY (Total = 89)*

Conference Keynotes and Invited Presentations - 15  
 Conference Papers Presentations (peer refereed papers or peer refereed proposals) - 67  
 Conference Papers and Presentations (non-refereed papers or refereed proposals) – 7

### *Conference Keynotes and Invited Presentations*

Thomas, G. P. (2022, January 24). *Changing course: Transforming education*. Presented at the celebration of the International Day of Education. Department of Education: Aligarh Muslim University, India.  
 Thomas, G. P. (2020, August 6). *Metacognition: Developing successful learners in remote learning environments*. Presented at the Centre for Teaching and Learning Online Teaching Institute, The University of Alberta.  
 Thomas, G. P. (2019, November 20). *The Paradox of Metacognitive and Self-regulatory Development for Students in Science (and Everything) Education*. Seminar presentation to CMASTE, University of Alberta.  
 Thomas, G. P. (2019, June, 17). *Mixed methods: One perspective*. Presented at the University of Alberta, International Institute for Qualitative Methodology, ‘Thinking Qualitatively’ Workshop Series & Conference. Edmonton, Alberta.  
 Thomas, G. P. (2017, November, 16). *Metacognitive teaching and learning environments*. Presented at the Center for Undervisningsudvikling og Digitale Medier, Aarhus Universitet. Aarhus, Denmark.  
 Thomas, G. P. (2013, December, 18). *Metacognition in science education: Current and future directions*. Presented at the Seoul National University-Hokkaido University-National Taiwan Normal University Symposium and Synergies Symposium ‘Bringing together for future creative society: Research in science learning in formal and informal settings.’ Seoul National University, Seoul, South Korea.  
 Thomas, G. P. (2011, June, 12). *How do we talk to students about science learning? The need for a language of thinking and learning in science classrooms*. Presented at Science Education Symposium (SES) 2011: ASEAN perspectives and directions, Khon Kaen, Thailand.  
 Thomas, G. P. (2011, March, 25). *A new science future, a new science teacher: Teacher metacognition as a priority in science teacher education*. Presented at the 4<sup>th</sup> International Conference on Educational Reform (ICER 2011), Luang Prabang, Laos PDR.  
 Thomas, G. P. (2010, May). *The centrality of teacher metacognition for science education reform: An agenda*. Presented at the Symposium “Teaching and self-regulated learning: Theory, instruction and assessment aspects” at the fourth meeting of the Metacognition SIG of the European Association for Research on Learning and Instruction, Muenster, Germany.

- Thomas, G. P. (2010, January, 28). *Metacognition: Emerging and persisting issues in measurement and intervention*. Inaugural Faculty of Education Research Forum. The University of Alberta, Edmonton, Canada.
- Thomas, G. P. (2009, September, 12). *The centrality of metacognition for science education reform: Challenging the status quo*. Presented at the International Conference on Educational Research, Khon Kaen, Thailand.
- Thomas, G. P. (2009, August). *Interpretive and mixed methods approaches to metacognition research: Providing context*. Presented at the SIG 16 (Metacognition) Invited Symposium at the conference of the European Association for Research on Learning and Instruction, Amsterdam, The Netherlands.
- Thomas, G. P. (2007, November). *Science Education for Environmental Stewardship: Time to act or not?* Presented at the Third International Conference on Education for Sustainable Development, Guangzhou, People's Republic of China.
- Thomas, G. P. (2005, December). *Myths and realities of learning to learn*. Presented at the 'Research and Practices in Science Education' conference, Hong Kong, People's Republic of China.
- Thomas, G. P. (2003, December). *Metacognition and science education: Past, present and future directions*. Presented at the 'Building on Strengths in Science Education 2003' conference, Guangzhou, People's Republic of China.

#### ***Conference Papers Presented (refereed papers or refereed proposals)***

- Thomas, G. P. (2023, May, 29). *Pre-service teachers' conceptions about what it means to understand biology*. Paper presented at the annual conference of the Canadian Society for Studies in Education, Toronto, Canada.
- Thomas, G. P. (2023, April, 20). *Pre-service teachers' conceptions about what it means to understand biology: A phenomenographic study*. Presented at the annual Conference of the National Association for Research in Science Teaching, Chicago, USA.
- Thomas, G. P. (2022, July, 14). *Students' Responses to The Direct Teaching of Cognitive Strategies: A Case study*. Paper presented at the 2022 *International Conference on Open and Innovative Education (ICOIE 2022)*. Hong Kong SAR: People's Republic of China.
- Thomas, G. P., Feisst, D., & Pow, V. (2021, July, 6). *Podcasts as metacognitive prompts: A case study of graduate students' metacognition regarding citations*. Paper presented at the 2021 *International Conference on Open and Innovative Education (ICOIE 2021)*. Hong Kong SAR: People's Republic of China.
- Thomas, G. P. (2020, July, 3). *Adopting a Reflexive Disposition as a Teacher<+>Researcher to Reconceptualize a Science Teacher Education Course*. Paper presented at the 2020 *International Conference on Open and Innovative Education (ICOIE 2020)*. Hong Kong SAR: People's Republic of China.
- Thomas, G. P. (2020, February, 21). *Pre-service science teachers' personal metacognitive knowledge: A source of concern or just the way it is?* Paper presented at the WestCAST 2020 Conference, Vancouver, Canada.
- Thomas, G. P. (2019, August, 28). *Exploring Practicing And Pre-Service Teachers' Procedural Metacognitive Knowledge: Initial Findings And Potential Implications*. Paper presented at the Biennial Conference of the European Science Education Research Association (ESERA), Bologna, Italy.
- Thomas, G. P. (2019, July, 11). *Informing a metacognitive orientation in university science teacher education*. Paper presented at the 2019 International Conference on Open and Innovative Education (ICOIE 2019), Hong Kong SAR: People's Republic of China.
- Chantharanuwong, W., Ruangsawan, C., Buaraphan, K., & Thomas, G. P. (2018, December

- 1). *Teachers' Metacognitive Knowledge in Science Classrooms*. Paper presented at the 2018 International Conference of the East-Asian Association for Science Education, Hualien, Taiwan.
- Chantharanuwong, W., Ruangsawan, C., Buaraphan, K., & Thomas, G. P. (2018, December 1). *Science Teacher as Researcher Though the Research-based Program Regarding Students' Thinking Skills*. Paper presented at the 2018 International Conference of the East-Asian Association for Science Education, Hualien, Taiwan.
- Thomas, G. P. (2018, July 6). *Calibration of a scale for exploring the learning environment of undergraduate physics laboratories*. Paper presented at the 2017 International Conference on Open and Innovative Education (ICOIE 2018), Hong Kong SAR: People's Republic of China.
- Thomas, G. P. (2018, May 27). *Science Teachers' Procedural Metacognitive Knowledge: Initial Investigations*. Paper presented at the annual conference of the Canadian Society for Studies in Education, Regina, Canada.
- Thomas, G. P., & Meldrum, A. (2017, July 13). *Enhancing the Learning Environment of Undergraduate Physics Laboratories to Stimulate Students' Scientific Inquiry Processes*. Paper presented at the 2017 International Conference on Open and Innovative Education (ICOIE 2017), Hong Kong SAR: People's Republic of China.
- Chantharanuwong, W., Buaraphan, K., Thomas, G. P., Ruangsawan, C., Booncerd, K., Anankaphan, S., & Sumida, M. (2016, June 3). *Supporting Science Learning through the Enhancing Students' Thinking Skills and Teachers' Thinking Research Project*. Paper presented at the 4<sup>th</sup> International Conference for Science Education and Teachers, Khon Kaen, Thailand.
- Chantharanuwong, W., Buaraphan, K., Thomas, G. P., Ruangsawan, C., Jaipam, B., & Hanwara, S. (2016, June 3). *Current Situation of Science Learning in the Leading Thinking School*. Paper presented at the 4<sup>th</sup> International Conference for Science Education and Teachers, Khon Kaen, Thailand.
- Thomas, G. P., & Meldrum, A. (2015, April, 17). *Enhancing the Learning Environment of Undergraduate Physics Laboratories to Promote Students' Scientific Inquiry Processes*. Paper presented at the annual Conference of the American Educational Research Association, Chicago, USA.
- Thomas, G. P. (2014, November, 20). *Metacognition in Science Education: Considering cultural and contextual orientations*. Paper presented at the World Education Research Association Conference, Edinburgh: United Kingdom.
- Thomas, G. P. (2014, June, 19). *Science teacher metacognition – Initial investigations*. Paper presented at the Global Curriculum & Instruction Network (GCIN) Conference, Hong Kong: People's Republic of China.
- Thomas, G. P., Meldrum, A., & Beamish, J. (2013, August, 6). *Transforming the Learning Environment of Undergraduate Physics Laboratories to Enhance Physics Inquiry Processes*. Paper presented at the 2013 International Conference on Physics Education, Prague, Czech Republic.
- Chantharanuwong, W., Thathong, K., Yuenyong, C. Buaraphan, K. & Thomas, G. P. (2013, August, 6). *The Current Situation of Students' metacognition of the High School Science Classrooms in Thailand*. Paper presented at the 2013 International Conference on Physics Education, Prague, Czech Republic.
- Thomas, G. P., & Chantharanuwong, W. (2013, July, 5). *Exploring the metacognitive orientation of year 10 and 11 science classrooms: A comparison of Kong Kong, Thailand, Canada, and the People's Republic of China*. Paper presented at the Third International Conference of the East-Asian Association for Science Education. Hong Kong: People's Republic of China.

- Chantharanuwong, W., Thathong, K., Yuenyong, C., & Thomas, G. P. (2013, July. 5). *Secondary school students' metacognitive knowledge in Thai context*. Paper presented at the Third International Conference of the East-Asian Association for Science Education. Hong Kong: People's Republic of China.
- Anderson, D., & Thomas, G.P. (2012, November). *Parents' metacognitive knowledge on their interactions with their children in a science museum*. STEM 2012 Conference, Beijing, China, November 24-28.
- Thomas, G. P., Meldrum, A., & Beamish, J. (2012, June, 28). *Conceptualisation and development of an instrument for investigating undergraduate physics laboratory environments*. Paper presented at the 2012 Conference of the Australasian Science Education Research Association. Mooloolaba, Australia.
- Thomas, G. P., & Anderson, D. (2012, March, 13). *Metacognition: Acknowledging cultural and contextual issues*. Paper presented at the 2012 Bangkok International Academic Conference. Bangkok, Thailand.
- Thomas, G. P. (2012, January, 6). *Designing and using metaphors for science learning: Towards subject specificity*. Paper presented at the Hawaii International Conference on Education. Honolulu, Hawaii.
- Chantharanuwong, W., Thatthong, K., Yuenyong, C., & Thomas, G. P. (2011, October, 27). *Exploring student metacognition in science, technology, society, and environment issues in a Thai Context*. Paper presented at the 2011 Conference of the East-Asian Association for Science Education. Gwangju, South Korea.
- Chantharanuwong, W., Thatthong, K., Yuenyong, C., & Thomas, G. P. (2011, September, 9). *Exploring the metacognitive orientation of the science classrooms in a Thai context*. Paper presented at the International Conference on Educational Research 2011: Learning Community for Sustainable Development. Khon Kaen, Thailand.
- Thomas, G. P. (2011, May, 31). *'Triangulation': A metaphor for enhancing students' metacognition regarding chemistry learning*. Paper presented at the 4<sup>th</sup> Redesigning Pedagogy International Conference, Singapore.
- Thomas, G. P. (2011, April, 8). *Enhancing metacognition related to chemistry learning: Students' conscious triangulation of macroscopic, molecular and symbolic representations*. Paper presented at the annual Conference of the American Educational Research Association, New Orleans, USA.
- Thomas, G. P. (2010, July). *The Interview as a Metacognitive Experience: Insights from Research with Students*. Presented at the 2010 International Conference on Learning, Hong Kong.
- Thomas, G. P. (2010, May). *Changing the metacognitive orientation of a classroom environment to enhance metacognition regarding physics learning*. Paper presented at the fourth meeting of the Metacognition SIG of the European Association for Research on Learning and Instruction, Muenster, Germany.
- Thomas, G. P., & Anderson, D. (2010, April). *Changing the Metacognitive Orientation of a Classroom Environment to Enhance Students' Metacognition Regarding Chemistry Learning*. Paper presented at the annual Conference of the American Educational Research Association, Denver, USA.
- Thomas, G. P., Anderson, D., Ellenbogen, K., & Cohn, S. (2009, August). *Parents' views of learning: Influences on parent-child interactions in a science museum setting*. Paper presented at the conference of the European Association for Research on Learning and Instruction, Amsterdam, The Netherlands.
- Ellenbogen, K., Anderson, D., & Thomas, G. P. (2009, July). *Investigating parent-child metacognition*. Paper presented at the 22<sup>nd</sup> annual conference of the Visitor Studies Association, St. Louis, Missouri, USA.



- Thomas, G. P. (2009, May). *The Reproduction of Science Student Cognition and Metacognition as a Function of Educational Hegemony: An Activity Theory Perspective*. Paper presented at the annual conference of the Canadian Society for Studies in Education, Ottawa, Canada.
- Thomas, G. P. (2008, May). *An activity theory perspective on metacognition: Developing metacognition in a year 11 chemistry classroom*. Paper presented at the third meeting of the Metacognition SIG of the European Association for Research on Learning and Instruction, Ioannina, Greece.
- Thomas, G. P. (2008, March). *Developing students' metacognition through realigning their views of the nature of chemistry learning: An activity theory perspective*. Presented at the annual Conference of the National Association for Research in Science Teaching, Baltimore, USA.
- Thomas, G. P., Anderson, D., & Nashon, S. (2006, July). *Development and validity of an instrument designed to investigate elements of science students' metacognition, self-efficacy and learning processes*. Presented at the annual conference of the Australasian Science Education Research Association Conference, Canberra.
- Thomas, G. P., Anderson, D., Ma, H. S., & Nashon, S. (2005, August). *Conceptualisation and development of an instrument for measuring the metacognition of high school science students*. Paper presented at the conference of the European Association for Research on Learning and Instruction, Nicosia, Cyprus.
- Nashon, S., Anderson, D., Thomas, G. P., Yagi, I., Neilsen, W., & Tetseyu, H. (2005, April). *Students' metacognitive characters as predictors of their subsequent knowledge construction*. Paper presented at the annual Conference of the American Educational Research Association, Montreal, Canada.
- Thomas, G. P., & Au, D. (2004, July). *Changing the learning environment to enhance students' metacognition in Hong Kong primary school classrooms*. Paper presented at the first meeting of the Metacognition SIG of the European Association for Research on Learning and Instruction, Amsterdam, The Netherlands.
- Thomas, G. P. (2004, April). *Lifelong learning, learning to learn, and metacognition (The missing element): A response to the rhetoric of Hong Kong science education reform*. Paper presented at the biennial conference of the Pacific Circle Consortium, Hong Kong.
- Thomas, G. P., & McRobbie, C. J. (2003, August). *Enhancing students' reasoning and conceptual development in relation to chemical equilibrium*. Paper presented at the European Science Education Research Association Conference, Noordwijkerhout, The Netherlands.
- Thomas, G. P. (2003, July). *Confirmatory Factor Analysis of an instrument designed to measure the metacognitive orientation of science classroom learning environments*. Presented at the annual conference of the Australasian Science Education Research Association Conference, Melbourne.
- Thomas, G. P. (2003, May). *Investigating the metacognitive orientation of science classroom learning environments: Variations between local and international schools in Hong Kong*. Presented at the annual Conference of the American Educational Research Association, Chicago, USA.
- Thomas, G. P., Fong, P., & Tsang, E. (2002, April). *Students' perceptions of microcomputer-based laboratories (MBL)*. Presented at the annual Conference of the American Educational Research Association, New Orleans, USA.
- Thomas, G. P. (2002, April). *Conceptualisation, development and validation of an instrument for evaluating the metacognitive orientation of science classroom learning environments: The Metacognitive Orientation Learning Environment Scale – Science (MOLES-S)*.

- Presented at the annual Conference of the American Educational Research Association, New Orleans, USA.
- Thomas, G. P. & McRobbie, C. J. (2002, April). Investigating students' learning about gases and kinetic theory using microcomputer-based labs (MBL). Presented at the annual Conference of the National Association for Research in Science Teaching, New Orleans, USA.
- Thomas, G. P. (2002, April). The MOLES-S: An instrument for investigating the metacognitive orientation of science classrooms. Presented at the annual Conference of the National Association for Research in Science Teaching, New Orleans, USA.
- McRobbie, C. J., & Thomas G. P. (2001, August). *They don't teach us how to explain: They only teach us other people's explanations*. Paper presented at the conference of the European Association for Research in Learning and Instruction, Friborg, Switzerland.
- Thomas, G. P., & McRobbie, C. J. (2001, August). *A case study of one teacher's attempts to improve student reasoning in a chemistry classroom*. Paper presented at the European Science Education Research Association Conference, Thessaloniki, Greece.
- Thomas, G. P., Fong, W-M, & Tsang, P-K. (2001, July). Students' perceptions of first-time use of microcomputer-based laboratories. Paper presented at the annual Conference of the Australasian Science Education Research Association Conference, Sydney, Australia.
- Thomas, G. P., & Lui, J. (2000, August). *Fostering quality learning for pre-service chemistry teachers: Incorporating continuous engagement with the secondary school context*. Presented at the conference "Innovations in Higher Education: INNO 2000." Helsinki, Finland.
- Thomas, G. P. (2000, April). *The social mediation of metacognition in a Year 11 chemistry classroom*: Presented at the annual Conference of the National Association for Research in Science Teaching, New Orleans, USA.
- Thomas, G. P. (2000, April). *The social mediation of metacognition in a Year 11 classroom: Implications for theory, practice and research*. Presented at the annual Conference of the American Educational Research Association, New Orleans, USA.
- Thomas, G. P., & McRobbie, C. J. (2000, April) *What can happen to teachers' pedagogical content knowledge when they engage in collaboration to enhance students' reasoning?: A case study*. Presented at the annual Conference of the American Educational Research Association, New Orleans, USA.
- Thomas, G. P., & McRobbie, C. J. (1999, July). *Collaborating to enhance student learning: One teacher's journey*. Paper presented at the annual Conference of the Australasian Science Education Research Association Conference, Rotorua, New Zealand.
- McRobbie, C. J., & Thomas G. P. (1999, April). *Changing the learning environment to enhance explaining and understanding in a Year 12 chemistry classroom*. Presented at the annual Conference of the American Educational Research Association, Montreal, Canada.
- McRobbie, C. J., & Thomas G. P. (1999, April). *The promise and practice of microcomputer-based learning in chemistry*. Presented at the annual Conference of the National Association of Research in Science Teaching, Boston, MA.
- Thomas, G. P., & McRobbie, C. J. (1998, November/December). *Using metaphors for investigating and reforming students' and teachers' classroom practices*. Paper presented at the annual conference of the Australian Association for Research in Education, Adelaide, Australia.
- McRobbie, C. J., & Thomas, G. P. (1998, November/December). *The use of microcomputer-based learning in senior chemistry: Does technological improvement always result in improved student learning?* Paper presented at the annual conference of the Australian Association for Research in Education, Adelaide, Australia.

- McRobbie, C. J., & Thomas, G. P. (1998, July). *Bridging the gap between promise and practice: The use of Microcomputer-based learning in senior chemistry*. Paper presented at the Conference of the Royal Australian Chemical Institute, Rockhampton, Australia.
- Thomas, G. P., McRobbie, C. J., & English, L. D. (1998, April). *Using a metaphor for learning to improve science learning*. Paper presented at the Conference of the American Educational Research Association, San Diego, CA.
- Thomas, G. P., McRobbie, C. J., & English, L. D. (1998, April). *Using a metaphor for learning to improve students' learning in chemistry*. Paper presented at the Conference of the National Association of Research in Science Teaching, San Diego, CA.
- Thomas, G. P., McRobbie, C. J., & English, L. D. (1997, September). *Using metaphors for learning to develop metacognition in chemistry students*. Paper presented at the biennial Conference of The European Science Education Research Association. Rome, Italy.
- Thomas, G. P. (1993, July). *Barriers to the teaching and transfer of cognitive strategies in the science classroom*. Paper presented at the annual Conference of the Australasian Science Education Research Association Conference, Lismore, Australia.

### ***Other Conference Papers/Presentations (non-refereed)***

- Thomas, G. P., Meldrum, A., & Beamish, J. (2013, March, 22). *Transforming the Learning Environments of Undergraduate Physics Laboratories to Enhance Physics Inquiry Processes*. Paper presented at the 5th Annual Dr. Olive Yonge Teaching and Learning Scholarship Day. The University of Alberta.
- Thomas, G. P. (2010). *What about how they learn science: The need for developing and enhancing metacognition*. Paper presented at the 50<sup>th</sup> Anniversary Conference of the Alberta Teachers' Association Science Council, Edmonton, Canada.
- Thomas, G. P. (2002). *The language of higher-order thinking: Developing students' metacognition in science classrooms*. Paper presented at the Science and Technology Education Conference, Hong Kong Institute of Education, Hong Kong.
- Thomas, G. P. (2001, June). *Conceptualising metacognitively oriented learning environments: Insights from research*. Paper presented at the Thinking Qualities Initiative Conference, Hong Kong.
- Thomas, G. P., & McRobbie, C. J. (1995, June). *The use of metaphors in developing students' thinking and learning*. Paper presented at the 4th International Literacy and Education Research Network Conference on Learning. Townsville, Australia.
- Thomas, G. P. (1993). *Complex reasoning*. Paper presented at the annual Conference of the Science Teachers' Association of Queensland. Brisbane, Australia.
- Thomas, G. P. (1991, November). *A thinking course in science*. Paper presented at the annual Conference of the Victorian Science Teachers' Association. Melbourne, Australia.

## **TEACHING**

### ***Area(s) of Teaching Expertise***

- Science Education theory, practice, and curriculum development
- Metacognition
- Research Methodology
- Learning Environments

### **SUMMARY**

### ***Courses Taught***

Undergraduate (80)

Curriculum and Instruction in Science Education – 68  
 Pure and Applied Science Courses – 5  
 Curriculum and Instruction in Micro-teaching – 3  
 Curriculum and Instruction: Educational Studies Core – 3  
 Graduate (30)  
 Metacognition: Theory and Practice – 10  
 Research Methodology – 7  
 Science Education – 6  
 Learning Environments: Theory and Practice – 6  
 Other topics – 4

***The University of Alberta***

2022-2023

EDSE 455	Curriculum & Teaching for Secondary School Science Majors II
EDHS504	Curriculum Studies in the Health Sciences
EDSE 401/501	Metacognition across Curriculum
EDSE 501	A History of Science Education

2021-2022

EDHS504	Curriculum Studies in the Health Sciences
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2020-2021

On Sabbatical

2019-2020

EDSE 455	Curriculum & Teaching for Secondary School Science Majors II
EDSE 451	Integrating Theory & Classroom Practice in the APT
EDSE 501	Metacognition across Curriculum

2017-2018

EDSE 355	Curriculum & Teaching for Secondary School Science Majors I
EDSE 356	Curriculum & Teaching for Secondary School Science Minors (x 2)
EDSE 402	Essential Ideas in Science Education
EDSE 455	Curriculum & Teaching for Secondary School Science Majors II

EDSE 451	Integrating Theory & Classroom Practice in the APT
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2016-2017

EDSE 356	Curriculum & Teaching for Secondary School Science Minors
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EDES509/EDEL595	Teaching Science in Elementary and Secondary Schools
EDSE 502	Universal Design for Learning: History and Issues
EDSE 452/456/460	Curriculum & Teaching for Secondary School Biological Science MajorsII
	Curriculum & Teaching for Secondary School General Sciences Majors II
	Curriculum & Teaching for Secondary School Physical Sciences Majors II
EDSE 620	Advanced Research Seminar in Secondary Education II
EDSE 501	Metacognition across curriculum

2015-2016

EDSE 501 Teaching students to learn  
EDSE 502 Gender Issues in Science Education

EDSE 451 Integrating Theory & Classroom Practice in the APT  
EDSE 452/456/460 Curriculum & Teaching for Secondary School Biological Science MajorsII  
Curriculum & Teaching for Secondary School General Sciences Majors II  
Curriculum & Teaching for Secondary School Physical Sciences Majors II  
EDSE 620 Advanced Research Seminar in Secondary Education II  
EDSE 602 Contemporary Issues in Home Education

2014-2015

EDSE 501 Metacognition across curriculum  
EDSE 620 Advanced Research Seminar in Secondary Education II  
EDSE 502 School Classroom Learning Environments  
EDSE 451 Integrating Theory & Classroom Practice in the APT

EDSE 452/456/460 Curriculum & Teaching for Secondary School Biological Science MajorsII  
Curriculum & Teaching for Secondary School General Sciences Majors II  
Curriculum & Teaching for Secondary School Physical Sciences Majors II

2013-2014

EDSE 620 Advanced Research Seminar in Secondary Education II  
EDSE 501 Metacognition across curriculum  
EDSE 602 Metacognition and Physics Learning  
EDSE 602 Metacognition and Mathematics Education

2012-2013

EDSE 360/364 Curriculum & Teaching for Secondary School General Sciences Majors I  
Curriculum & Teaching for Secondary School Physical Sciences Majors I  
EDSE 502 Metacognition: Teacher and Student Development  
EDSE 502 School and Classroom Learning Environments

2011-2012

EDSE 501 Metacognition across curriculum

2010-2011

EDSE 352/360/364 Curriculum & Teaching for Secondary School Biological Science Majors I  
Curriculum & Teaching for Secondary School General Sciences Majors I  
Curriculum & Teaching for Secondary School Physical Sciences Majors I  
EDSE 451 Integrating Theory & Classroom Practice in the APT  
EDSE 452/456/460 Curriculum & Teaching for Secondary School Biological Science MajorsII  
Curriculum & Teaching for Secondary School General Sciences Majors II  
Curriculum & Teaching for Secondary School Physical Sciences Majors II

2009-2010

EDSE 451 Integrating Theory & Classroom Practice in the APT  
EDSE 460 Curriculum & Teaching for Secondary School Physical Sciences Majors I  
EDSE 461 Curriculum & Teaching for Secondary School Physical Sciences Majors II

EDSE 511	Research Design in Secondary Education
EDSE 502	Methods of Instruction using the SMART BOARD in Secondary Science Courses
EDSE 602	Metacognition and Mathematics Education
EDSE 602	Teaching Methods for Science

2008-2009

EDSE 460	Curriculum & Teaching for Secondary School Physical Sciences Majors I
EDSE 461	Curriculum & Teaching for Secondary School Physical Sciences Majors II
EDSE 511	Research Design in Secondary Education
EDSE 501	School and Classroom Learning Environments

2007-2008

EDSE 451	Integrating Theory & Classroom Practice in the APT
EDSE 460	Curriculum & Teaching for Secondary School Physical Sciences Majors I
EDSE 461	Curriculum & Teaching for Secondary School Physical Sciences Majors II
EDSE 511	Research Design in Secondary Education
EDSE 502	Physics Curriculum Emphases

***The Hong Kong Institute of Education*** (Note: No graduate program offered at the time I was there)

2006-2007

SCI5064	Foundations of Science Education
SCI5065	Teaching and Learning a Specialist Area in Science Education

2005-2006

SCI5065	Teaching and Learning a Specialist Area in Science Education
SCI3043	The Teaching of Junior Secondary Science (0.5 Course Load)
SCI4085	Teaching and Learning Integrated and Applied Science (0.5 Course Load)
SCI4083	Advanced Studies in the Teaching and Learning of Chemistry (0.5 Course Load)
SCI5099	Diseases and Public Health (0.5 Course Load)
SCI5064	Foundations of Science Education
SCI2087	Current Issues in Science and Technology Education

2004-2005

SCI5065	Teaching and Learning a Specialist Area in Science Education
SCI3076	Foundations of Science Education
SCI3043	The Teaching of Junior Secondary Science

2003-2004

SCI5064	Foundations of Science Education
SCI5065	Teaching and Learning a Specialist Area in Science Education

IHE3035	Developments in Food Science and Nutrition (0.5 Course Load)
SCI3043	The Teaching of Junior Secondary Science

SCI4012 Environmental Studies

2002-2003

SCI5339 Teaching and Learning of Secondary Biology I  
 SCII002 Children's Science Learning (0.5 Course Load)  
 SCI3043 The Teaching of Junior Secondary Science  
 SCI2009 Environmental Education

***The University of Hong Kong***

2001-2002

PCED003 Post-grad. Certificate of Education (Full-time) Major: Chemistry  
 PCED68201 Post-grad. Cert. of Education (Full-time) Option: Science  
 PCED698N Post-grad. Cert. of Education (Full-time) Micro-teaching  
 PCED66708 Post-grad. Cert. of Education (Part-time) Major: Common Methods

PCED66833 Post-grad. Cert. of Education (Part-time) Educational Studies Core  
 PCED6810B Post-grad. Cert. of Education (Part-time) Minor: Science  
 MEDU6803 Classroom and School Learning Environments (Graduate)  
 MEDU680X Learning Environments and Teacher Beliefs (Graduate)

2000-2001

CURR670003 Post-grad. Certificate of Education (Full-time) Major: Chemistry  
 CURR710025 Post-grad. Certificate of Education (Full-time) Option: Science  
 CURR691009 Post-grad. Certificate of Education (Full-time) Micro-teaching  
 PCED6703 Post-grad. Certificate of Education (Part-time) Major: Chemistry  
 CURR3003 Post-grad. Certificate of Education (Part-time) Educational Studies Core  
 CURROB20 Post-grad. Certificate of Education (Part-time) Minor: Science Option  
 MEDU6803 (EL15) Classroom and School Learning Environments (Graduate)

1999-2000

PCED003 Post-grad. Certificate of Education (Full-time) Major: Chemistry  
 PCED68201 Post-grad. Certificate of Education (Full-time) Option: Science  
 PCED69100 Post-grad. Certificate of Education (Full-time) Micro-teaching  
 CURR6703 Post-grad. Certificate of Education (Part-time) Major: Chemistry  
 CURR3003 Post-grad. Certificate of Education (Part-time) Educational Studies Core  
 CURROB20 Post-grad. Certificate of Education (Part-time) Minor: Science Option

***Queensland University of Technology***

1998-1999

MDB 390 Natural and Processed Materials  
 MDB 384 Science Education  
 MDB 387 Science Foundations  
 MDB 325 Biology Curriculum Studies I  
 MDB 326 Biology Curriculum Studies II  
 MDB 337 Science Curriculum Studies I  
 MDB 501 Mathematics, Science and Technology II

Completed

PhD Supervisor

PhD: Ms. Gamolnaree Laikram (Convocating Fall, 2023)

Title: Exploring the relationship between Thai science teachers' metacognition and their perceptions of metacognitively oriented learning environments.

PhD: Ms. Ellen Watson (Conferred Spring 2021)

Title: *Connecting epistemic beliefs about physics knowledge and curriculum concerns in Saskatchewan: A mixed analysis study.*

PhD: Ms. Kerry Rose (Conferred Spring 2021)

Title: *How Do Teachers' Perceptions of Their Agency and Engagement Change After Participating in Self-Directed Professional Development?*

PhD: Mr. Michael Lukie (Conferred Spring 2021)

Title: *High School Students, ' Teachers, ' and Professors ' Conceptions of What It Means to Understand Physics.*

PhD: Ms. Behnaz Herbst (Conferred Spring 2021)

Title: *Supporting Students' Calibration in High School Mathematics.*

PhD: Mr. Michael Kohlman (Conferred Fall 2018)

Title: *Evangelizing Eugenics: A Memetic Appraisal of Eugenics Education in the Interwar-era, and the Legacy of **Eugenics** and Race-Hygiene **Today and Tomorrow.***

PhD: Mr. Zhao Zhanqiang (Conferred Spring 2015)

Title: *Mainland Chinese Students' Metacognition, Including Their Conceptions of Learning: A Phenomenographic Study in Hebei and Shandong Provinces.*

MEd Thesis, Project, or Program Supervisor

MEd: Mr. Michael Kohlman (Conferred Fall 2008)

Title: *What was the impact of the Cold War on American Science Education?*

MEd: Mr. Ben Oswald (Conferred Fall 2008)

Title: *Visualizing science: Internal visualization using student journaling.*

MEd: Ms. Chu Man Wai (Conferred Fall 2009)

Title: *Exploring Science Curriculum Emphases in Relation to the Alberta Physics Program-of-Study*

MEd: Mr. Laurie Dean Johnston (Conferred Fall 2010)

Title: *Students' Interpretations of an Electrical Model Using a Computer Simulation on an Interactive White Board*

MEd: Mr. Bill Bagshaw (Conferred Spring 2014)



Title: *Environmental outdoor education and exposure to nature: Positive effects on student wellness and academic achievement*

MEd: Ms. Mary Pokerznik (Conferred Spring 2014)  
Title: *Development of an outreach school learning environment survey*

MEd: Ms. Stephanie Flowers-Gallimore (Conferred Fall 2016)  
Title: *Designing Lessons that promote Metacognitive Awareness in Physics*

MEd: Ms. Chelsea Androschuk (Conferred Spring 2017)  
Title: *The Effects of the International Baccalaureate Diploma Programme on Schools: A Systematic Review of the Literature*

MEd: Ms. Linden Couteret (Conferred Spring 2018)  
Title: *Getting Teachers Thinking About Student Metacognition: Workshop Development Background and Methodology.*

MEd: Ms. Christa King (Conferred Fall 2019)  
Title: *Indigenous Perspectives in the Alberta Science Curriculum: The Factors That Influence How Teachers Incorporate Indigenous Perspectives in Their Science Classrooms.*

MEd: Ms. Jennifer Kamal (Conferred Fall 2020)  
Title: *Integrating Science and CTS: A Revolutionary Step towards Learning That Makes Sense.*

#### Current Graduate Student Supervision

PhD: Mr. Andrew Kirk

MEd: Ms. Betty Fu; Ms. Alyssa Kopec; Mr. David Haitel; Mr. Chris Watson; Mt. Ching, Tai Pot (Curtis); Ms. Alison Buchynski.

#### Membership of PhD Supervisory Committees

Completed: Dr. Cathryn van Kessel, Dr. Monica Chahal; Dr. Jeff Kuntz; Dr. Wisam Abdul Jabbar; Dr. Joni McBeth Turville; Dr. Tim Buttler; Dr. Qingna Jin; Dr. Jiae Park. Dr. Alexandre Araujo

In Progress: Ms. Christina Grant, Mr. Ian Doktor.

#### ***The University of Hong Kong***

PhD: Mr. Wei Bing (Conferred 2003)  
Title: *A Case Study of Curriculum Change in China: The Junior Secondary School Chemistry Curriculum – 1978 to 2001.*

MEd: Mr. Kan Kwok-kin, Terry (Conferred 2000)  
Title: *Exploring teachers' perceptions and practices in implementing the Advanced Level Teacher Assessment Scheme for practical chemistry in Hong Kong.*

### ***Invited Graduate Examinations***

PhD Final Examinations 26: University of Hong Kong (3), University of Alberta (8), Curtin University, Perth, Australia (1), University of Technology, Sydney, Australia (1), Australian Catholic University, Brisbane, Australia (1), The University of Calgary (1), Khon Kaen University (5), Chinese University of Hong Kong (1), Queensland University of Technology (2), University of Pretoria (1), Murdoch University (2).  
Masters Final Examinations 6: University of Hong Kong (1), University of Alberta (3), Queensland University of Technology (1), University of Melbourne, Australia (1).  
Doctoral Candidacy Examinations 2: University of Alberta (2)

### ***Service to the University of Alberta***

### **SERVICE AND PROFESSIONAL ACTIVITY**

#### **Member: General Faculties Council Committee on the Learning Environment**

1<sup>st</sup> September 2021 – Present

#### **Member: Research Ethics Board 1. The University of Alberta**

1<sup>st</sup> May 2019 – Present.

#### **Representative of the Education Faculty on Faculty of Science Council**

1<sup>st</sup> July, 2023 – Present.

#### **Member: Alberta Advisory Committee for Educational Studies**

1<sup>st</sup> July 2021 – 30<sup>th</sup> June 2023

#### **Member: Undergraduate Steering Committee (Faculty of Education)**

Fall Term 2019 – June 2020.

#### **Member: Undergraduate Committee (Department of Secondary Education)**

1<sup>st</sup> July, 2019 – Present.

#### **Interim Chair: Department of Secondary Education, The University of Alberta.**

1<sup>st</sup> July 2018 – 30<sup>th</sup> June, 2019.

#### **Co-Director: Centre for Mathematics, Science & Technology Education**

(Department of Secondary Education) 1<sup>st</sup> July, 2017 – 30<sup>th</sup> June, 2018.

#### **Graduate Academic Affairs Committee Alternate (Department of Secondary Education)**

1<sup>st</sup> July, 2017 – 30<sup>th</sup> June, 2018.

#### **Editor: Alberta Journal of Educational Research**

1<sup>st</sup> July, 2010 – 30<sup>th</sup> June, 2018

#### **Faculty Evaluation Committee (Faculty of Education)**

Elected Member, 2016 – 2018

#### **International Advisory Committee (Faculty of Education)**

Elected Member, April 2012 → No official date at which this committee was ended.

#### **Graduate Coordinator (Department of Secondary Education) 1<sup>st</sup> July, 2011 – 30<sup>th</sup> June 2014.**

#### **Scholarship and Research Awards Committee (Faculty of Education)**

Committee Member 1<sup>st</sup> July, 2010 – 30<sup>th</sup> June, 2012

#### **Research Ethics Board (Faculty of Education, Augustana, & Extension)**

Associate Chair, 1<sup>st</sup> January, 2010 – 30<sup>th</sup> June, 2010.

Statutory Member (Department of Secondary Education), 1<sup>st</sup> July, 2008 – 30<sup>th</sup> June, 2010.

Alternate Member (Department of Secondary Education), 1<sup>st</sup> August, 2007 - 30<sup>th</sup> June, 2008.

**Representative of the Education Faculty on Faculty of Science Council**

1<sup>st</sup> July, 2009 – 30<sup>th</sup> June, 2017.

**Graduate Admissions and Awards Committee (Department of Secondary Education)**

September 1, 2015 – 30<sup>th</sup> June, 2017.

**Grant Assist Program Peer Review** (Academy of SSHRC Reviewers) (University of Alberta) (2013 & 2014)

**Phi Delta Kappa Dissertation Award Review Committee Member (Faculty of Education)** (2015)

**Graduate Committee (Department of Secondary Education)**

Member: September, 2007- 30<sup>th</sup> June, 2010

**Faculty (Dean's) Representative on Undergraduate Leadership Awards Committee**

Member – 2009, 2010, 2011

**Advisory Selection Committee (Faculty of Education)**

Committee Member 1<sup>st</sup> July, 2008 – 30<sup>th</sup> June, 2010.

**Academic Appeals Committee (Faculty of Education)**

Committee Member 1<sup>st</sup> July, 2008 – 30<sup>th</sup> June, 2010.

*Service to Hong  
Kong Institute  
of Education*

**Member of Council** (University Senate)

(Elected member from Academic Board) (2004 – July, 2007)

(Member of the Finance Committee of Council)

**Head of Department**, Department of Mathematics, Science, Social Sciences and Technology.  
(August 2005 – August 2007).

**Head of Department**, Department of Science (2002 – 2005)

*Committee and Validation/Accreditation Team Memberships*

- Member of Academic Board (2002-2007)
- Member of Student Disciplinary Committee (19<sup>th</sup> July 2006 – July 2008)
- Member of the Faculty Executive: Faculty of Languages, Arts and Sciences. (2005 – 2007)
- Member of the Continuing Professional Education Management Committee (2005 – 2007)
- New Zealand Study Tour Leader for General Studies and Science Education Students. (2004)
- Member, Executive Committee. Faculty of Language, Arts and Sciences (2005 – July 2007)
- Member of the Senior Management Team, School of Foundations in Education (2002-2005)
- Chair, Liberal Studies Programme Development Team (2004 – July 2007)
- Chair of Science Department Teaching and Learning Quality Assurance Committee (2002-2005)
- Member of Discipline Studies Committee (July 2004 – July 2007)
- Member of Science Department Publicity and External Relations Committee (2002 - 2005)
- Member of PGDE(S) Internal and External Validation Programme Teams (2003)
- Member of BEd(S) Internal and External Validation Programme Teams (2003)
- Developer of the Collaborative 4-year Bachelor of Science (Science Education) Programme of The Hong Kong University of Science and Technology and The Hong Kong Institute of Education.

Course Director: Part-time Post-graduate Certificate in Education Programme (2001- 2003)  
Course Coordinator: Chemistry Education Major for the Post-graduate Certificate of Education

**Service to The  
University of  
Hong Kong**

**Membership of Faculty/Department Committees**

Chairperson: Post-graduate Certificate of Education Student/Staff Consultative Committee

Member: Faculty Admissions Committee - Faculty of Education

Member: Faculty Research Committee – Faculty of Education

Member: Faculty Editorial Board – Faculty of Education

Member: Information Technology Taskforce – Department of Curriculum Studies

**Additional  
Professional  
Activities**

**Editorial Boards**

*Metacognition and Learning* (2005 – present)

**Editor: Alberta Journal of Educational Research**

1<sup>st</sup> July, 2010 – 30<sup>th</sup> June, 2018

*Research in Science Education* (1999 - present)

(Associate Editor for North America 2014 – present)

*Curriculum Perspectives* (2015 – present)

*Asia-Pacific Forum on Science Learning and Teaching* (2003 – present)

*Journal of Research in Science Teaching* (2008 – 2011)

*Electronic Journal of Science Education* (1999- 2004)

**Reviewer**

*The Teacher Educator* (2017)

*Educational Psychology* (2016)

*Educational Studies* (2016)

*International Journal For Lesson and Learning Studies* (2016)

*Review of Education* (2015)

*Chemistry Education Research and Practice* (2015, 2016, 2019, 2022)

*International Journal of Mathematics and Science Education* (2015)

*Journal of Science Education and Technology* (2014, 2015)

*Canadian Journal of Learning and Technology* (2014)

*Studies in Science Education* (2013)

*International Journal of Science Education* (2013)

*European Journal of Physics Education* (2013)

*British Journal of Educational Psychology* (2012)

*Educational Psychology* (2011)

*Mind, Culture and Activity* (2010)

*Higher Education* (2009)

*Learning Environments Research* (2009, 2011, 2014)

*Science Education* (2008-2010, 2104, 2015)

*Canadian Journal of Science, Mathematics and Technology Education* (2008)

*Asia Pacific Education Review* (2008)

*Journal of Research in Science Teaching* (2002 – present)

*Teaching and Teacher Education* (2001)

*Curator* (2003, 2004)

*International Studies in Educational Administration* (1999)

### ***Memberships of Committees***

- *Member of the Hong Kong Research Grants Council Panel for Humanities, Social Science, and Business Studies (2005-2007)*
- *Hong Kong Curriculum Development Council Committee on Science Education. (2003-2007)*
- *Hong Kong Examinations Authority Form 5 Chemistry Committee (2000-2002)*
- *Hong Kong Examinations Authority Form 6 (A-level) Chemistry Committee (2001-2002)*
- *Hong Kong Examinations Authority Form 5 Science and Technology Committee (2001-2002)*
- *Organising Committee for the Science and Technology Education Conference, Hong Kong, 2000.*

### ***Reviewer of Applications for Tenure and Promotion (8)***

University of Ottawa, Canada (2007); Australian Catholic University, Australia, (2008); University of Buffalo, USA (2014); James Cook University, Australia, (2014); Simon Fraser University, Canada, (2015); Simon Fraser University (2018); University of British Columbia (2020), University of Exeter (2022).

### ***Presentations to other Departments/Faculties/Centres***

Thomas, G. P. (2021, March 3). Conceptualizing and distributing OERs on metacognition. Seminar presentation at the Centre for Teaching and Learning, University of Alberta.

CMASTE Panel on STEM Education. (2019, May 14). CMASTE Faculty Club Dinner, University of Alberta.

Thomas, G. P. (2019, February 12). *Improving student learning through metacognition*. Seminar presentation at the Centre for Teaching and Learning, University of Alberta.

Thomas, G. P. (2018, December 6). *Introducing Metacognition and Potential Implications*. Seminar presentation to The University of Alberta Libraries, University of Alberta.

Thomas, G. P. (2018, August 16). *Being more than a presenter of information: Metacognition, and developing your students as learners*. Seminar presentation at the 'New to Teaching Orientation,' Centre for Teaching and Learning, University of Alberta.

Thomas, G. P. (2016, September 9). *The structure and purpose of undergraduate laboratories in science*. Seminar presentation to the Department of Physics, University of Alberta.

### ***Professional Development Workshops/Presentations for Teachers***

Thomas, G. P. (2020, November 7<sup>th</sup>). *I want my students to learn science better! What can I do? Here's five ideas*. Presented at the Annual Conference of the Alberta Teachers' Association Science Council, Edmonton.

Thomas, G. P. (2018, February 9<sup>th</sup>). *Using Flex-time effectively: Developing Metacognitive, Self-regulatory Learners*. Presented at the North Central Teachers' Convention 2018, Edmonton.

Thomas, G. P. (2018, January 22/23). *Metacognition*. Presented to CMASTE professional development activity "The Art and Science of Physics Teaching." University of Alberta, Edmonton.

Thomas, G. P. (2017, February 10<sup>th</sup>). *Developing and enhancing students as effective learners: The case for Metacognition*. Presented in two repeat sessions at the North Central Teachers' Convention 2017, Edmonton.

Thomas, G. P. (2016, June 7-8<sup>th</sup>). Teacher professional development workshop on

- metacognition. Location - Khon Kaen Thailand. Project: *The improving students' thinking skills and conducting research to enhance their achievement including all of the academic sections of Khon Kaen Secondary Education*. Funded by: Khon Kaen Secondary Education Service.
- Thomas, G. P. (2015, September, 25<sup>th</sup>). Invited speaker. Location – Ubolratana District, Thailand. Project: *The improving students' thinking skills and conducting research to enhance their achievement including all of the academic sections of Khon Kaen Secondary Education*. Funded by: Khon Kaen Secondary Education Service.
- Thomas, G. P. (2015, April 27<sup>th</sup>). Invited speaker. Location - Khon Kaen Thailand. Project: *The improving students' thinking skills and conducting research to enhance their achievement including all of the academic sections of Khon Kaen Secondary Education*. Funded by: Khon Kaen Secondary Education Service.
- Thomas, G. P. (2001/2002). *Professional development course for secondary school graduate chemistry teachers 2001/02*. Funded by: Hong Kong Education Department.
- Thomas, G. P. (2002, October). *Metacognition and 'Learning to Learn': Understanding the connection*. Seminar presented to the Curriculum Development Institute, Hong Kong.

### **Collaboration with Schools**

- Visiting Science Fair Judge. École Champs Valeé School Beaumont. (2019, July 19).
- Thomas, G. P. (2019, June 11). Metacognition: Possibilities and practicalities. Seminar presented at ME Lazerte High School, Edmonton.
- Thomas, G. P. (2019, May 22). *Metacognition and developing your students as learners*. Seminar presented at ME Lazerte High School, Edmonton.
- Thomas, G. P. (November 27<sup>th</sup> 2017). *Metacognition Across the Curriculum: Ideas and starting points*. Seminar presented at Centre High School, Edmonton, Alberta.
- Thomas, G. P. (April 28<sup>th</sup> 2017). *Guiding students' Use of Seminar Flex(Time)*. Seminar presented at Spruce Grove Composite School, Spruce Grove, Alberta.
- Ross Sheppard High School, Edmonton: Professional Development Day Speaker. (1<sup>st</sup> March, 2016)
- St Thomas More Junior High School, Edmonton: Visiting advisor (2013/14 school year)
- St Joseph's College, Edmonton. Professional Development Session for Staff. (16<sup>th</sup> November, 2014)
- Salisbury Composite High School, Sherwood Park: Professional Development Day Speaker for Science Department. (6<sup>th</sup> November, 2013)
- Guest Teacher: *Form 4 Chemistry, St. Paul's Co-educational College, Hong Kong, May 2000*.
- Presenter: *Form 3 Learning to Learn Course: HKTA Yuen Yuen Institute No. 2 Secondary School, Hong Kong, May 2001*.
- Collaborator: Lesson Study Program for Science Teachers at SKH Bishop Mok Sau Tsang College, Tai Po, Hong Kong, 2001-2002.

### **Conference Associated Service**

- Discussant for AERA 2011 Paper Session: "Math education and teacher development: Critical practices and important insights."
- Chair for three (3) AERA 2011 paper sessions.
- Reviewer for Graduate Thesis Award for Science Education Research Group of the Canadian Society for Studies in Education (2013).
- Coordinator of Refereed Paper Submissions for the Annual Conference of the Australasian Association for Research in Science Education (ASERA) (2002 – 2006, 2008)
- Reviewer of paper proposals for conferences: NARST (2000, 2002), CSSE (2009, 2018), ASERA (2009, 2010), EARLI (2010), AERA (2008-2012)



ENDS