

Contributors

Hector Cure was born in Bogota, Colombia on September 11 of 1999. He is currently a Senior at Colegio Nueva Granada. For the past two years, he has participated in two research studies in the medical field, such as PET Scans for pancreatic cancer detection, the experience of the Clínica General del Norte with GIST. This year he was able to conduct his own study that united both psychology and medicine by trying to find if cognitive behavioral therapy was effective for treating depression in stage II pancreatic cancer patients. Hector is going next fall to the University of Pennsylvania to study molecular and cellular biology and psychology on the pre-med track. Additionally, at school, he is the president of the tutoring committee of the National Honor Society, and he gives tutoring sessions to children from impoverished communities as well as his classmates. Aside from his academics, he is a black belt in karate and mentors lower belts and occasionally swim. Finally, Hector loves to travel around the world and he would like to travel to several Asian countries, including China, Korea, and Thailand. Last summer, Hector traveled to Africa to do social service in Tanzania with an organization called Projects Abroad, and two summers ago he visited Tokyo and Dubai. He would love to continue learning about new cultures and traveling to amazing places with a strong cultural heritage.

Rachael Dickenson is a 12th grader whose lifelong interest in plants and guidance from stellar mentors led her to research involving invasive species. She looks forward to doing more research in the future and hopes to become an environmental engineer.

Steven Du is a grade 12 student who attends St. Andrew's College. He will be studying software engineering next year but takes a keen interest into the social sciences.

Lida Ehteshami is a junior at DeBakey High School in Houston, Texas. She is interested in international relations, economics, and issues involving global politics. In the future, she hopes to become an international lawyer.

Isaac Gallogly conducted this research while a senior at Hampton High School, in the suburbs of Pittsburgh, Pennsylvania. He plans to attend Vassar College in the fall of 2018.

William Howard-Waddingham is a high school student in his senior year. He will be attending Yale University for Political Science as a member of the Class of 2022. He is passionate for social justice reform, prompting the topic of inquiry.

Megan Leinenbach is a junior at Lake Howell High School. Within the last year, she has conducted microbiological research about the antibacterial efficacy of essential oils. In her school, Megan is involved in student government, national honors society, science honors society, math honors society, the academic team, and softball.

Ella Moxley is a senior at Norman North High School in Norman, Oklahoma. She is involved in Speech and Debate and National Honors Society. Next year she will attend Oberlin College and study environmental policy. She would like her teacher, Janice Mullan, and her research consultant, Ann Beutel.

Andrew Pyper currently attends Royal St. George's College, and after his graduation, he will be attending The University of Chicago to pursue his passion for economics.

Noor Said is currently a senior high school student enrolled in AP Research. In her free time, Noor enjoys reading, painting, and traveling with her family.

Justin Shaw is a student at Gig Harbor High School located in Gig Harbor, Washington. He is passionate about finding new ways to use technology to solve practical problems in the world. He is also an armature kite-flier, programmer and soccer player.

Allison Tu is a student at duPont Manual High School in Louisville, Kentucky. She is passionate about student advocacy and is a member of the Prichard Committee Student Voice Team and an ambassador to the separate organization Student Voice. She is dedicated to elevating the principles of student-driven movements to her own work, and founded and serves

as Executive Director of STEM Y, a nonprofit organization aiming to break gender, racial, and socioeconomic barriers through student-driven STEM education. She is also passionate about adolescent mental health, and founded a student alliance to improve the wellbeing of Kentucky students.

Sophia Xu is a junior student at Michael E. DeBakey High School for Health Professions. She is particularly interested in the field of medical science and is currently working towards becoming a non-invasive cardiologist. She is currently the District J Representative for the Houston Mayor's Youth Council and co-founded Future Business Leaders of America (FBLA). She is also working in MD Anderson to further her research. In her free time, she teaches piano to students, after acquiring her teaching certificate by taking theory, basic harmony, intermediate harmony, level 10, and music history. In piano, she has won 1st division, 3rd place at Blinn's Piano Competition and 1st place in the Independent Music Association competition. In other awards, her team won 3rd place in Community Awareness for raising Parkinson's Disease and 1st place in Medical Innovations in Health Occupations Students of America (HOSA).

Faculty and Advisors to Contributors

Ernesto Carriazo teaches at Colegio Nueva Granada in Columbia.

Daniel Coapstick is an AP Research teacher at Stuttgart High School in Germany.

Kathy Fries teaches at at duPont Manual High School in Louisville, Kentucky.

Jessica Hupper teaches at Gig Harbor High School in Gig Harbour, Washington.

Hongyan Li is a teacher at the DeBakey High School for Health Professions at Houston, TX. She teaches AP Research, Biology, and Forensic Science.

Her primary goal is to help young people to achieve their dreams. She received her M.D. from Hebei Medical University in China in 1997, and her Ph.D. in Neuroscience from University of Arkansas in 2007. Then for eight years, she has focused on researching the molecular mechanisms in visual transduction in University of Texas Health Science Center at Houston. During those years working as a physician and a scientist, she also enjoyed training students and helping them with their career goals. Therefore, in 2015 she became a High School Science teacher. Personally, she enjoys sewing, biking, and playing badminton.

Stacey Marten is in her fourth year as the Librarian and Tech Lead at Gig Harbor High School. Teaming up with the AP Research teacher, Jessica Hupper, was the perfect partnership for a librarian that emphasizes strong research skills for students. Before obtaining her certification in Library/Media studies she taught social studies and history classes for 14 years at Sedgwick Junior High in South Kitsap, Washington. She is National Board certified in Social Studies & History/Adolescent & Young Adulthood.

Janice Mullan, a teacher at Norman North High School in Norman, Oklahoma, leads the Norman North High School's AP Capstone program and also teaches English 4. She has taught for 20 years. She was and continues to be deeply involved in the development and implementation of the AP Capstone program within the school district. She earned a Bachelor's degree in Journalism (Professional Writing) from the University of Oklahoma. She served 12 years in the Air Force and spent three of those years teaching journalism to fledgling Armed Forces journalists. After her time in the service, she became a student again and earned her Masters in Education (English) from the University of Central Oklahoma, and began teaching English including AP English Literature and AP English Language. Four years ago, her principal approached her to undertake a new curriculum, AP Capstone, which has proven to be a truly invigorating program that develops invaluable confidence in the students as they hone their academic writing and presentation skills. Her students each year have been a delight as they enthusiastically pursue a wide range of research interests and topics using inquiry-based and cooperative learning strategies, renewing her own

passion for not only teaching and aiding students, but also the joys of academic research.

Brian O'Connor teaches at Colegio Nueva Granada in Columbia.

Shannon Roos is an English and AP Capstone teacher and an instructional coach at Hampton High School in Pennsylvania. She holds a bachelor's degree in English and secondary education from Carlow University and her master's degree in instructional technology from Wilkes University. Through her teaching and coaching she strives to help students see themselves as problem solvers who can face challenges with curiosity and confidence. She looks forward to continuing to support these ideas in the AP Research course.

Michelle Satchwell is an English teacher at Carmel High School in Carmel, Indiana. She teaches AP Research in the AP Capstone program as well as dual-credit and honors classes. She has been an AP College Board Consultant for AP Capstone since 2014. Co-author of Reading Lists for College-Bound Students and STACS: Strategies to Acquire Composition Skills, Mrs. Satchwell was the Carmel Clay school corporation's Teacher of the Year in 2004 and is an Armstrong Teacher Educator at Indiana University. Mrs. Satchwell is a devoted educator who delights in helping her students reach their potentials.

Samantha Scheepers is an Upper School English and AP Research teacher at St. Andrew's College. She is also the chair of school's Standing Committee for Excellence in Teaching and Learning. She holds a Master's of Teaching, specializing in metacognition and reading comprehension, as well as a BA (Hons.) with high distinction in English and Renaissance Studies from the University of Toronto. She has recently completed a teaching fellowship focused on leadership in independent schools at Columbia University and has presented her research on cooperative learning through the International Boys' School Coalition.

Tonya Sukhu teaches at the Michael E. DeBaakey High School for Health Professions in Houston, Texas.

Alesia Williams has a background in the humanities. She has a BA in art history from Berea College and has completed coursework for a MA from the University of Cincinnati. She has a MAT with a focus on English from Spalding University. She has been teaching in the public school system in Louisville, KY for sixteen years. Thirteen of those years have been at duPont Manual High School which has five magnets and is typically ranked as the best high school in Kentucky. She has been teaching AP English Language and Composition for ten years and AP Research for one year. She is focused on helping her students achieve at the highest levels especially in regards to academic writing. She encourages her students to think of themselves as writers and to pursue writing competitions and publication. Her students have been recognized with top honors from the NCTE and KCTE writing competitions, the Scholastic Art and Writing competition, and the MIT INSPIRE research competition.

Edison Yagoubian is a graduate of UCF college of sciences. His degree focus is on molecular & microbiology. He has postgraduate research experience in malaria prevention and clean water maintenance. He has been teaching AP level biology/physics since 2010, and he has been a research advisor for two years. His focus as an advisor is always on maintaining a high standard for the student projects and guiding young researchers to ask deeper questions, approach a problem from many perspectives, and to remember that research is the cornerstone of innovation.

Editors of the Journal

- Suzanne Conklin Akbari
BA, MA, MPhil, PhD
- Suzanne Conklin Akbari is professor of English and Medieval Studies at the University of Toronto, and was educated at Johns Hopkins and Columbia. Her research focuses on the intersection of English and Comparative Literature with intellectual history and philosophy, ranging from neo-platonism and science in the twelfth century to national identity and religious conflict in the fifteenth century. Akbari's books are on optics and allegory (*Seeing Through the Veil*), European views of Islam and the Orient (*Idols in the East*), and travel literature (*Marco Polo*); she is currently at work on *Small Change: Metaphor and Metamorphosis in Chaucer and Christine de Pizan*. She is volume editor for the *Norton Anthology of World Literature* (Volume B: 100-1500), co-editor of the *Norton Anthology of Western Literature*, and editor of *The Oxford Handbook to Chaucer*. She has begun a new research project called *The Shape of Time*, contrasting the temporal breaks found in medieval chronicle traditions with poetic narrations of the historical past. Akbari is cross-appointed to the following units at the University of Toronto: Centre for Medieval Studies; Centre for Comparative Literature; Centre for Jewish Studies; Department of Near and Middle Eastern Civilizations; Centre for Reformation and Renaissance Studies.
- Barrie Bennett
BPE, MEd, PhD
- Barrie Bennett is professor emeritus at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). His research work focuses primarily on the design of powerful learning environments for students and teachers through the process of systemic change. He is currently working in districts in three countries on long-term projects related to instructional intelligence and systemic change (Australia, Ireland and Canada). Instructional intelligence involves intersecting the current research on curriculum, assessment, and instruction guided by what is known about how students and teachers learn. That intersection being driven by what is known about change and systemic change. He also assists teachers, schools, and districts with issues related to classroom management and school wide-discipline. Barrie has taught at the elementary and secondary levels, as well as, having worked in group homes, prisons, and security units for juvenile offenders. He has written six books: *Cooperative Learning: Where Heart Meet Mind*; *Classroom Management: A Thinking and Caring Approach*; *Beyond Monet: The Artful Science of Instructional Integration*; *Graphic Intelligence: Playing With Possibilities* and most recently *Power Plays*. Currently he is just finishing a text titled, *Effective Group Work: Beyond Cooperative Learning*.

- Anthony Campbell
BA, MA, PhD
- Anthony Campbell established Grow for Good Urban Teaching Farm in 2013 as a business model innovation laboratory and learning centre for young entrepreneurs. He spent time working throughout North America, Europe, Australia, Asia and now resides in his hometown of Toronto. Examples of Anthony's work are documented in *The Innovator's Field Guide* (2014), co-authored by David Crosswhite and Peter Skarzynski, as well as multiple Harvard Business School and Corporate Executive Board case studies chronicling the innovation and capability-building efforts of companies such as Samsung, Whirlpool, Best Buy and McDonald's. Previously, Anthony taught Film Studies, Writing and English Literature at The University of Western Ontario.
- Jeremy B. Caplan
ScB, PhD
- Jeremy Caplan is an Associate Professor in Psychology Department at the University of Alberta, where he is also the Principal Investigator at the University of Alberta Computational Memory Lab. The lab is focused on human verbal memory behaviour and its basis in cognitive and neural processes. The team takes several approaches towards research, including mathematical modeling, measures of behaviour in the cognitive psychology tradition, and measures of brain activity using electroencephalography (event-related potentials and oscillations) and functional magnetic resonance imaging. He has been a referee for 38 academic journals.
- Hance Clarke
BSc, MSc, MD,
PhD, FRCPC
- Dr. Clarke is the director of Pain Services and the medical director of the Pain Research Unit at the Toronto General Hospital. He is appointed to the Institute of Medical Sciences at the University of Toronto and is a graduate of the Royal College Clinician Scientist Program. His research interests include identifying novel acute pain treatments following major surgery, identifying the factors involved in the transition of acute postsurgical pain to chronic pain, studying the genetics of acute and chronic pain after surgery, and identifying risk factors associated with continued opioid use and poor health related quality of life after major surgery as well as the efficacy of hyperbaric medicine. Over the past five years he has authored 47 peer reviewed manuscripts.
- Will Fripp
BA, MA
- Will Fripp is a public affairs and political risk analyst for Canadian and international clients. A B.A. in History and Political Science from Victoria University at the University of Toronto and an M.A. in Intelligence and International Relations from the University of Salford in Manchester, England, he is a historian specializing in intelligence and espionage, and its modern influences. Will anchored www.spiesintheshadows.com, a web based curriculum outlining Canadian foreign intelligence history and its impacts on Canada's national development. An occasional lecturer, Will's writings and review articles appear in peer-reviewed academic journals like *Intelligence and National Security*, and elsewhere.

- Michael Gemar
BSc, BA, PhD
- Michael Gemar received undergraduate degrees in Psychology and Philosophy from Rice University, and a PhD in experimental psychology from the University of Toronto. He has worked as a researcher at the Centre for Addiction and Mental Health, examining the cognitive and neural correlates of mood disorders, and was involved in a landmark study demonstrating the efficacy of mindfulness meditation to prevent depressive relapse. He has co-authored numerous journal articles, and taught for over a decade at U of T. More recently, he has worked in the area of health policy, and is currently at a Canadian non-profit.
- Jennifer Goldberg
BA, BEd, MA
- Jennifer Goldberg holds an M.A. in History from the University of Toronto. Her graduate studies focused on teacher misconduct in 19th century Ontario, and her research is published in *Historical Studies in Education*. She currently teaches at Havergal College, where she has also served as Chair of Teaching and Learning. In this capacity, she has explored the role of feedback in student learning, and has presented on this work at the National Coalition of Girls' Schools and Conference of Independent Teachers of English.
- Margaret S.
Herridge
BSc, MSc, MPH,
MD, FRCPC
- Margaret Herridge is a Professor of Medicine and Senior Scientist at the University of Toronto. She is also a senior clinician in Critical Care and Respiratory medicine at University Health Network. Her research focus is on long-term outcomes after critical illness for patients and families and specifically on functional, neuropsychological, healthcare utilization and quality of life metrics. Her graduate studies were in Cell and Molecular Biology at Queen's University where she subsequently obtained her degree in Medicine. After completing her clinical training in Internal Medicine/Respirology and Critical Care at the University of Toronto, she obtained her Master of Public Health in Epidemiology and Statistics from the Harvard School of Public Health.
- Ted
Higginbotham
BSc, MSc
(Candidate)
- Ted Higginbotham is a graduate student at The University of Toronto and Hospital for Sick Children. His research is focused on further delineating the role of genomic structural variation in autism spectrum disorder and human disease. Ted is a contributing member of the Clinical Genome Resource (ClinGen), an international consortium working to define the clinical relevance of genes for use in precision medicine and translational research.
- Tim Hutton
BA, MLIS
- Tim Hutton is a teacher-librarian at Royal St. George's College. He has a BA in History and American Studies from the University of Toronto and a Masters in Library and Information Science from San Jose State University. At the secondary level, he has taught courses in the social sciences, humanities and communications technology, including a locally designed interdisciplinary course in urban studies.

Ira Jacobs

Dip Phys Ed,
MHK, DrMedSc

Professor Ira Jacobs became dean of the Faculty of Kinesiology & Physical Education at the University of Toronto on July 1, 2010, and was re-appointed to his current second decanal term. Before assuming this role, Jacobs was chair of York University's School of Kinesiology and Health Science from 2007 until 2010, and a federal government scientist from 1982 until 2007.

Jacobs earned his doctorate in clinical physiology from Sweden's Karolinska Institute, where he specialized in skeletal muscle metabolism. For the next 25 years, he did extensive exercise physiology research in Canada's human sciences laboratory, operated by the Department of National Defence. There, Jacobs rose to the position of chief scientist and led a unique international research group that helped to enhance the performance of military special operations units through their research into physiological, nutritional and pharmacological strategies.

He is a past president of the Canadian Society for Exercise Physiology and the Canadian Council of University Physical Education and Kinesiology Administrators. He is a fellow of the American College of Sports Medicine, an international fellow of the US National Academy of Kinesiology, and in 2016, he was named a Fellow of the Canadian Academy of Health Sciences.

Jacobs' research has led to the publication of more than 200 scientific articles, reports and book chapters about his research interests that include the physiological responses to physical exertion in environmental extremes, performance enhancement through pharmacological and nutritional manipulation of metabolism, and exercise pharmacology.

During his term as dean, the Faculty of Kinesiology & Physical Education has been rated as among the top academic programs in the world for kinesiology, physical education, sport and exercise sciences.

John Lambersky

BA, MA, BEd,
PhD

John Lambersky is a teacher and head of the Canadian and World Studies department at Royal St. George's College in Toronto, where he leads the AP Capstone program. He has presented his work on teaching practice at the conferences of the International Boys' School Coalition, the National Association of Independent Schools, and the Canadian Accredited Independent Schools. His academic research is focused on school culture as a mechanism for school improvement. His work has been featured in *Leadership and Policy in Schools*, *The Dalhousie Review*, and *The Nashawaak Review*.

Lori Loeb
BA, MA, PhD

Lori Loeb is Associate Professor of Modern British history at the University of Toronto. She has a Masters in Museum Studies and a PhD in History. A specialist in the Victorian period, she is the author of *Consuming Angels: Advertising and Victorian Women*. Generally, she writes about things in nineteenth-century Britain. A past Deputy Chair and Associate Chair (Graduate) of the History Department, she is currently MA Coordinator. She teaches courses in nineteenth and twentieth-century British history, Victorian material culture and the English country house.

Jaime Malic
BA (Hons), MA,
BEd, PhD

Jaime Malic recently completed her PhD in Educational Leadership and Policy at the Ontario Institute for Studies in Education at the University of Toronto. Her research focused on leadership values and practices in independent schools in Ontario. Jaime has more than ten years of experience as an educator in both independent and public schools. She currently teaches AP Capstone Seminar and senior English courses at St. Clement's School. Jaime has served as both a Reader for AP Capstone Seminar and a writer on the Item-Writing Committee for the Ontario Secondary School Literacy Test. She has written for *Independent Teacher* and presented on various topics at the Conference of Independent Teachers of English Annual Conference, the Ontario Advanced Placement Administration Conference, and the Advanced Placement Annual Conference.

William J.
McCausland
BASc, MEng,
MA, PhD

William McCausland is an associate professor of economics at the Université de Montréal. His research applies Bayesian statistical methods in two main areas. The first is discrete choice, at the interface of economics and psychology, where researchers study how people make choices from a small menu of available options. The second is time series modelling in economics, which has many applications in macroeconomics and financial economics. His undergraduate studies were in Engineering and he received his Ph.D. degree in economics from the University of Minnesota.

Michael
Simmonds
BPE, M.A., Dip.
Ed., MEd, EdD

Michael Simmonds has worked in independent schools for over two decades. He taught science, biology, chemistry, physics, and math before becoming an administrator and Head of School. He earned graduate degrees from both McGill and Columbia universities respectively before receiving his doctorate from the University of British Columbia in Educational Policy & Leadership. His work on accountability synopticism is published in the peer-reviewed, *The International Education Journal: Comparative Perspectives*. He currently works at Havergal College as the VP School Life, Operations & Student Wellness.

Guidelines for Contributors

The Young Researcher is a peer-reviewed journal dedicated to publishing the best original research from secondary school students.

The journal's mission is to provide a larger audience for the original academic research of ambitious secondary students, provide a forum for peer-review, and create a community of young researchers. In addition, the journal strives to advance the quality of academic writing in secondary schools.

The Young Researcher is edited by secondary school students working closely with scholars and active researchers at universities and in the community. The journal operates a blind peer-reviewed review process, following those found in academic research journals.

The journal encourages submissions of original research (including relevant replication studies) from a wide range of academic disciplines within the social sciences, humanities, and sciences.

This is an open-access journal. By submitting your article, you agree to have it published in the journal. You always retain copyright as the author.

Since the journal publishes original research, by submitting your work you affirm that it is yours, that it is free from issues of academic dishonesty, and that it has not been submitted elsewhere.

To read more about TYR, about our editorial process, or to submit an article, please visit our website: www.TheYoungResearcher.com.

Please direct any questions to TheEditors@TheYoungResearcher.com

Submission Guidance:

- No more than 5,000 words, excluding references and appendices (in English)

- Articles should have the following sections or equivalent:

 - Introduction

 - Literature Review

 - Method, Process, or Approach

 - Findings or Results

 - Discussion, Analysis, and/or Evaluation

 - Conclusion and Future Directions

 - References

- Papers should be formatted using discipline-appropriate methods (MLA, APA, and Chicago are acceptable).

- Papers should have an abstract (no more than 150 words) and have 4-6 keywords

- All units of measurement should be in metric wherever possible

- All studies involving human participants must have been approved by a Research Ethics Board