the legacy project

P John Williams

Many vocational education, technology education, and now technology and engineering education leaders have made their mark on our profession. Their legacy is something that members of the profession enjoy and have a responsibility to continue and build upon.

The Legacy Project focuses on the lives and actions of leaders who have forged our profession into what it is today. Members of the profession owe a debt of gratitude to these leaders. One way to demonstrate that gratitude is to recognize these leaders and some of their accomplishments. The focus in this issue is on Dr. P John Williams.

by
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Reinsfield,
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P John Williams

Professor of Education, Director of Graduate Research, Curtin University, Perth, Western Australia

Place of Birth: Geelong, Victoria, Australia

Married to: Susan Williams

Degrees:
Doctor of Philosophy, Master of Arts, Diploma of Secondary Teaching, Bachelor of Arts, Diploma of Secondary Education

P John Williams is a Professor of Education and the Director of Graduate Research in the School of Education at Curtin University in Perth, Western Australia, where he teaches and supervises research students in STEM and technology education. Apart from Australia, he has worked and studied in a number of African and Indian Ocean countries as well as in New Zealand and the United States. His current research interests include STEM, mentoring beginning teachers, pedagogical content knowledge (PCK) and electronic assessment of performance. He regularly presents at international and national conferences, consults on Technology Education in a number of countries, and is a longstanding member of eight professional associations. He is the series editor of the *Springer Contemporary Issues in Technology Education* and is on the Editorial Board of six professional journals. He has authored or contributed to over 250 publications and has been elected to the International Technology and Engineering Education Association's Academy of Fellows for prominence in the profession.

P John Williams

Occupational History:

2016	Curtin University, Perth, Australia
	Director: Graduate Research, School of Education
	Director: STEM Education Research Group
2010 - 2016	University of Waikato, Hamilton, New Zealand
	Acting Head: School of Curriculum and Pedagogy
	Director: Technology, Environmental, Mathematics and Science Education Research Centre
1995 - 2009	Edith Cowan University, Perth, Australia
	Secondary Program Director: School of Education
	Acting Associate Dean: International and Commercial
	Coordinator: Technology Education
1991 - 1994	University of Newcastle, Australia
	Lecturer: Department of Applied Science and Technology
1986 - 1990	Belvedere Technical Teachers College, Harare, Zimbabwe
	Principal Lecturer: Technical
	Lecturer (Part Time [PT]): Faculty of Education, University of Zimbabwe
1985	Avondale College, Australia
	Lecturer, Applied Arts Department
1980 - 1984	Andrews University, Michigan, USA
	Masters and Ph.D. student
	Research Assistant (PT): Educational and Psychological Services
	Teaching Assistant (PT): Technology
1977 - 1978	Adelaide High School, Australia
	Teacher: Industrial Arts
1976	Leigh-Mardon, Brisbane, Australia
	Package Designer
1975	Melbourne, Australia
	Builder: Self-employed
1971-1974	Avondale College, Australia
	Teacher training

Other Selected International Experience:

Visiting Scholar
- Aix-Marseilles University, France
- The University of Malawi, Malawi
- Goldsmiths College, University of London
- National Taiwan Normal University, Taiwan
- National Kaohsiung Normal University, Taiwan
- Nanjing Normal University, Nanjing, China
- King Monkut's University of Technology Tbonburi (KMUTT), Thailand

External Examiner
- Mauritius Institute of Education, Bachelor of Education (B.Ed.)
- Hong Kong University, MA (Science, Technology, Engineering, Mathematics [STEM] Education)
- Bindura University of Science Education, Zimbabwe, M.Ed.
- University of Malawi, Masters of Technology (M.Tech.)

Chief Examiner
- Design Technology, International Baccalaureate Organization

How did you end up in technology teacher education?

My father was a mechanic and builder and had imbued in me a pleasure in doing practical things. As a result, I wanted to pursue a career with a strong practical element. Being a teacher was not my first choice at the conclusion of secondary school. I wanted to be an architect but did not have the prerequisite subjects necessary for that course. I had good memories of secondary school technical studies, so I thought that would be an appropriate option, which led me to enroll in a manual arts teacher education course.

When I completed my Industrial Arts teaching course, I was not confident as a teacher, so I worked for two years in industry. I then taught for three years as the sole technical teacher in a small secondary school. I had always wanted to continue my studies, so my wife and I sold everything and went to study in the United States (U.S.). I did not receive high grades at school, but to my surprise, the further I progressed with my education the easier it became. My original intent was just to complete a Masters, but I continued on to receive my Ph.D. Toward the end of my studies I received some sponsorship, so upon completion returned to Australia to begin work as a teacher educator.

Your postgraduate study was in the USA, then you worked as a teacher educator in Australia and Africa. How did you make that transition?

My wife and I were poor grad students in the U.S., so we did not return to Australia during the five years we were studying

there. Upon return we realized that we had underestimated the power of reverse culture shock and found it quite difficult settle into Australia. I had spent five years immersed in the culture of U.S. Technology Education, and the Australian context was quite different, and we found it difficult to assimilate. As a result, we only worked in Australia for one year, and then went to Africa. Of course, the context there was also very different, but we anticipated that, so it was easier to integrate into.

The technology education contexts of these three countries were very different. Australia developed from manual arts to industrial arts and then technology education in a similar way to the U.S. The development in Australia was more aligned with the curriculum in the United Kingdom, so had a pronounced focus on design. This was likely attributable to Australia's colonial legacy and Commonwealth status. Zimbabwe also had an English legacy, but there was an emphasis on indigenous technology, and it was also a very new curriculum.

At this time (mid to late 1980s) the three countries had similar educational philosophies, which meant that, from my perspective, my core understanding was transferable. Technical education had a focus on skill development; students in technology classrooms all did the same things and were expected to do so at a similar pace, and the area of study was generally for less academically capable students.

Most of your early employment in higher education was in Zimbabwe. What was that experience like, and how did it shape your philosophy of education?

This was a very exciting time to be in Southern Africa. We could see the end of apartheid coming in South Africa; the civil war in Mozambique was resolving; Namibia got its independence; and Zimbabwe was newly independent: it was a dynamic region. Education provision was expanding very rapidly in Zimbabwe, with hundreds of new schools being established each year as a result of the foreign aid that was pouring into the country.

In this context I got used to the idea that my small contribution was making an important difference, a rationale for my professional activity, which has persisted to this day. My most memorable research projects have been those that have readily translated to practical outcomes. My satisfaction in supervising postgraduate students derives from the professional development I observe as they progress through their research journey.

My graduate experiences in the U.S. had inclined me to believe that it was possible to develop "universal" statements in technology education—aims, goals, and content organizers, which were valid across time (in any era) and space (anywhere). This was epitomized in the Jacksons Mill curriculum documents, which stated that there were four *universal* technical systems.
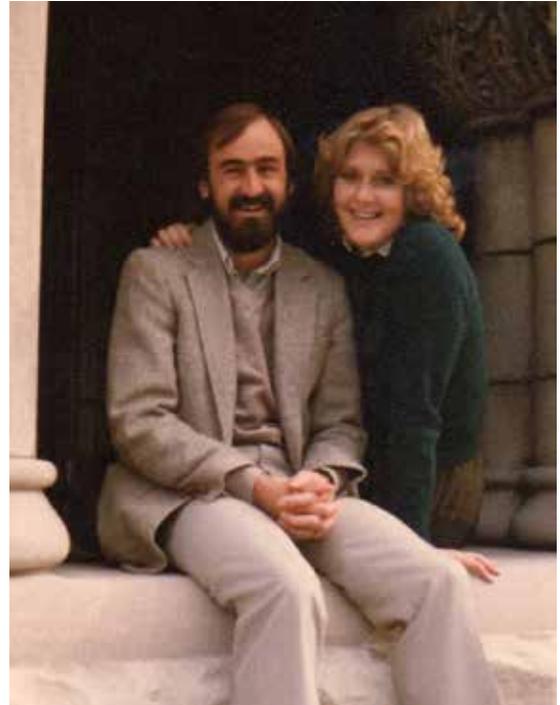
John and Sally.

My time in Zimbabwe made me realize how naïve this approach was. All countries have a unique history, which in turn provides a unique foundation and context for the enactment of technology education. There are two key contradictions, which can be used to illustrate this point. The first is related to indigenous technologies. During my five years studying Technology Education in the U.S., I cannot recall any reference to the significance of indigenous technologies. Conversely, in many African countries, indigenous technologies are recognized as important contexts in which to examine the fundamental principles of technology.

The second issue is related to vocational education. While struggling to untangle the "vocational—general technology education web" in the U.S., I had developed the philosophy that a general education approach was best for as long as possible in a student's development. I perceived that, maybe by the time they were in high school, students were better placed to make vocational education choices. Given the variables of economic development, differing forms of education, social, and attitudinal factors in Zimbabwe, this philosophy was erroneous. In this context, it was appropriate for students to make vocational education choices at the end of primary school, or even earlier in some cases. I have generalized this issue into the belief that there is no single prescription of technology education that is appropriate for all countries. This does not mean that different countries cannot learn from each other, but it does mean that systems, structures, standards, and products developed in one country rarely successfully transplant to another.

John and Aki N at Nairobi tech ed conference 1987 or 1998.

One of the centers was located in a physical environment in which all students and staff offices were in the same building and adjacent to each other. This physical proximity had a significant impact on the development of a research community through regular coincidental and planned meetings, seminars, and social events. A positive and functional community has many advantages in this context—it facilitates research collaboration, supports novice researchers, and broadens individual understandings about research.

What do you feel about the current status and future of technology education?

The desire for global transferability of educational ideas is not uncommon. There have been consistent attempts to replicate elements of the Finnish educational system because that country has consistently scored well in international tests. Some have attempted the adoption of the U.S. standards for technology education or called for a uniform approach to what constitutes STEM Education, accompanied by a single universal definition. Such goals are unattainable, and the global diversity of technology is a strength of the profession.

You have managed two research centers. What strategies did you employ to ensure their sustainability and success?

The two research centers were the *STEM Education Research Centre* at Curtin University in Australia and the *Technology, Environmental, Mathematics and Science (TEMS) Education Research Centre* at the University of Waikato in New Zealand. The centers were similar in a number of ways: they were both cross-disciplinary STEM, they supported research by academic staff and higher degree students, they had been established in faculties of science, and their structures were unsustainable. Most of the researchers within both centers were educators, so the centers were moved into faculties of education. The centers had been established on the basis of large research grants, which were no longer as readily available, so they were restructured to ensure that no individuals were employed by the center, but were members of the faculty. This enabled some flexibility in reacting to both small and large future research opportunities.

It is impossible to comment globally on the status of technology education, as every country is different. In some countries, like England, it is under threat. In other countries, like China, it is rapidly developing. For many countries it is "business as usual." There do seem to be a number of factors that help ensure a *sustainable* technology curriculum, but no specific combination of factors seems to be essential. Factors can include sympathetic politicians, an active professional association, a curriculum that has a compulsory core, high profile curriculum champions, a steady supply of new teachers, and relevant teacher professional development. The experience of some countries, like South Africa and England, has indicated that even though the position of technology education seems secure, it can change quite quickly, and key stakeholders need to be vigilant in advocating for this area of the curriculum.

Generally speaking, I am optimistic about the future of technology education. There is an active international community, which is open to new participants, and a significant and developing body of research. As high-profile leaders in the profession retire, it is encouraging to see younger academics becoming involved in the international discourse through publishing and presenting.

As countries implement regular curriculum revisions, I sense a movement away from the traditional constituents of technology education. For some countries, this is evidence of post-colonial maturity in reflecting authentic national histories and goals; for others it reflects confidence, born of a developing national community of technology education practitioners and researchers who are confident about their goals for the future.

This will result in increasing global diversity of technology education curriculum. Some perceive this as a disadvantage that works against the development of a united international community of practitioners and scholars, but I think there is strength in such diversity. This shift may represent a movement away from the structure of the sciences, which tends to be internationally consistent and uniform, toward the social sciences, which tend to be more regionally and nationally oriented and consequently globally diverse.

Now that you are not involved in undergraduate technology teacher education, how do you see your contribution into the future?

I do miss not being involved directly in technology teacher training, particularly guiding students through practical ways of designing resolutions to authentic or personal problems. I also miss access to a workshop so I can continue my own personal practical development!

These days I do not do any independent academic work. I try to involve younger academics in the research or development projects in which I do engage because they can usually benefit from the research outputs and so further their professional development and career.

I feel a sense of frustration that, with the developing expectation to retire (as I approach that age), there is also a concurrent feeling that I can also continue to make significant contributions to the profession. Unlike sportsmen, who often peak in their contribution at a relatively young age, in our profession the peak can come at an older age. I look on the potential of retirement in a few years as an opportunity to be more flexible in what I do and to seek out those opportunities. I reflect back on those days in Africa when what I did really made a difference.

Thank you, Dr. Williams, for sharing some of the highlights of your service to our profession. The Legacy Project is designed to focus on the achievements of very influential leaders. It is beneficial for current (and future) leaders to read about the issues that existed and how they were addressed "back in the day." In a few months the next interview will appear in this journal. If you have a suggestion of a leader to recognize, contact the author with that person's name and contact information.

Elizabeth Reinsfield (Liz) *is a Senior Lecturer in the Division of Education, at the University of Waikato, New Zealand. Her research includes a focus on teachers' readiness to engage with and enact the technology curriculum. In particular, she is interested in the opportunity that technology education provides to enhance innovative thinking and future-focused responses to societal need. Her most recent project explores cross-generational perceptions of innovation.*

In 2019, Liz led the Mātanga project—a national professional learning programme (PLP) for Early Childhood, Primary, and Secondary technology teachers in New Zealand. The focus of this PLP was to provide opportunities for teachers to engage with and adopt new ways of teaching the technology curriculum. This was particularly pertinent because of the recent curriculum revision and consequent emphasis on Digital Technology. As a result of this work, she was given the Technology Education New Zealand (TENZ) Award: Outstanding Teacher Educator in Technology.

P John Williams *is a Professor of Education and the Director of Graduate Research in the School of Education at Curtin University in Perth, Western Australia, where he teaches and supervises research students in STEM and technology education. His current research interests include STEM, mentoring beginning teachers, PCK and electronic assessment of performance. He has authored or contributed to over 250 publications and has been elected to the International Technology and Engineering Education Association's Academy of Fellows for prominence in the profession.*

Johnny J Moye, Ph.D. DTE, *serves as ITEEA Senior Fellow. He is a retired U.S. Navy Master Chief Petty Officer, a former high school technology teacher, and a retired school division CTE Supervisor. Johnny can be reached at* johnnyjmoye@gmail.com.