

# A BRIEF HISTORY OF ACSME: 25 YEARS OF MAKING IT MATTER

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## ABSTRACT

For 25 years the Australian Conference on Science and Mathematics Education (ACSME) has provided a forum for educators interested in advancing teaching and learning in science and mathematics education. Originally called the UniServe Science Conference, it encompasses biological sciences, geosciences, chemistry, health sciences, information technology, learning and cognitive sciences, mathematics and statistics, molecular and microbial sciences, physics and psychology as well as the various fields of the applied sciences. ACSME provides excellent networking opportunities and has attracted a large number of participants over the years. Perhaps the feature which is most compelling are publications of formal Proceedings which were initiated in 1996 and are available online, and an affiliated journal - the International Journal of Innovation in Science and Mathematics Education (IJISME). From 1995 till 2015, the conference was predominantly supported by The University of Sydney, with UniServe/ACSME being hosted at its home institution till 2010. A fundamental change occurred in 2011 with ACSME travelling across Australia, its first stop being The University of Melbourne. It has now rotated through all state capital cities except Hobart. From 2016, ACSME is under the stewardship of the Australian Council of Sciences (ACDS). This paper provides a snapshot of the history of ACSME and provides insight into how ACSME has been shaped to date.

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## The making of a premier national conference in Australia

With the Australian Conference on Science and Mathematics Education (ACSME) celebrating its 25<sup>th</sup> anniversary in 2019, it is fitting to look back and reflect on how it has become the premier conference for tertiary science and mathematics educators.

### The beginning...

The ACSME was originally called the UniServe Science conference. UniServe Science was established in December 1994 with funding from the then Committee for the Advancement of University Teaching (CAUT) together with generous assistance from the Faculty of Science at The University of Sydney. It was intended to be a national network of software clearinghouses in the disciplines of Science, Law, Engineering, Humanities and Health Sciences. It commenced operations in April 1995 with the aim to offer the following services to science academics in all universities in Australia:

- promote the use of new technologies in undergraduate science teaching;
- advise academics about what teaching materials were available;
- publicise quality teaching materials, especially those developed within Australia;
- evaluate science teaching materials; and
- encourage co-operation between developers and users of teaching materials.

Under the leadership of Associate Professors Ian Johnstone and Mary Peat as Directors, and Professors David Patterson and Anthony Haymet as Deputy Directors, UniServe Science was successful in achieving its goals. One of these goals was establishing the UniServe Science Conference, which was first held as an informal gathering in 1995 with no associated publications. In 1996, after gaining some traction, the UniServe Science Conference became a formal workshop on the theme of “dry labs” with proceedings which are available online. The motivation for the theme was the steady decline of government funding at the time, despite a slow by steady increase in student numbers. Universities were faced with the problem of how to provide science students with a good learning experience, while operating with reduced resources. In response to these hurdles, some universities began offering first year students alternative experiences (dry labs) to replace some of their traditional “wet labs”. Dry labs consisted of computer simulations, or structured tutorials incorporated the use of technology. In his welcome address by the then Pro-Vice Chancellor, Professor Robert Hewitt posed many questions for participants to consider.

- Is it possible for students to gain a true understanding of reality from a mathematical model or a computer simulation rather than from direct observation?
- Is this mode of teaching at variance with the essence of the scientific method of investigation?
- Should IT be used only to provide preliminary instruction in technique?

The workshop brought together key people who were running dry labs at their home institutions. They showed examples of what they did, discussed the logistics of their operations and the problems that they had solved.

### From the UniServe Science Conference to the ACSME

From 1995 till 2009, the UniServe Science Conference, its Proceedings and Journal were housed within the entity called UniServe Science with substantive support from The University of Sydney. In 2010, a new vision was created with the establishment of the Institute for Innovation in Mathematics and Science Education (IISME) under the leadership of Professor Manjula Sharma (Director) and Dr Alexandra Yeung (Manager). UniServe Science was folded into IISME, the conference renamed to ACSME and ACSME began travelling across Australia, see Table 1. A new team took on the challenge of organising the ACSME each year. In 2011 ACSME was held at the University of Melbourne. Professor Elizabeth Johnson (chair) said that “it was a great opportunity to welcome new participants as well as old friends to grow the community of science and mathematics educators”. In 2016, the Australian Council of Deans of Science (ACDS) took over management of ACSME after the establishment of the ACDS Teaching and Learning Centre.

**Table 1:** Summary of UniServe Science Conference and ACSMEs held to date.

Year	Theme	Host(s)
1995	First UniServe Science Conference	U.Syd.
1996	Dry Labs (workshop)	U.Syd.
1997	Putting you in the Picture (workshop)	U.Syd.
1998	University Science Teaching and the Web (workshop)	U.Syd.
1999	Tools for Flexible Learning Workshop	U.Syd.
2000	Evaluating the New Teaching Technologies (workshop)	U.Syd.
2001	Research and Development into University Science Teaching and Learning	U.Syd.
2002	Scholarly Inquiry in Flexible Science Teaching and Learning	U.Syd.
2003	Improving Learning Outcomes Through Flexible Science Teaching	U.Syd.
2004	Scholarly Inquiry into Science Teaching and Learning	U.Syd.
2005	Blended Learning in Science Teaching and Learning	U.Syd.
2006	Assessment in Science Teaching and Learning	U.Syd.
2007	Science Teaching and Learning Research Including Threshold Concepts	U.Syd.
2008	Visualisation for Concept Development	U.Syd.
2009	Motivating Science Undergraduates: Ideas and Intervention	U.Syd.
2010	Creating ACTIVE Minds in our Science and Mathematics students	U.Syd.
2011	Teaching for Diversity – Challenges and Strategies	U.Melb.
2012	Teaching and Learning Standards: What does a standard mean to you?	U.Syd.
2013	Students in transition – The learners’ journey	ANU, U.Canb.
2014	Student engagement: From the classroom to the workplace	U.Syd., UTS
2015	Transforming practice: Inspiring innovation	Curtin, Murdoch
2016	The 21st Century Science and Maths Graduate	UQ
2017	Science And Mathematics Teaching And Learning For The 21st Century	Monash
2018	Future Learning, Future Teaching	U.Adel.
2019	Student Experience and Student Stories	U.Syd., UTS

### Final remarks

ACSME has transformed from a small conference to a key gathering of science and mathematics educators in Australia from a wide variety of disciplines, institutions (and now countries) with a common goal of enhancing the overall student experience and improving learning outcomes. Presentations have moved away from mostly “show and tell” to rigorous educational research that inform practice. The shift of the conference to a national event that travels the country, requires a distributed management and leadership team that will build capacity in science and mathematics education across universities. Since the early years, there has been substantive foresight, leadership and financial support provided to continue with the ACSME. However, it is the enthusiasm and contributions of everyone in the community that has allowed ACSME to thrive.

### ACKNOWLEDGMENTS

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