

Schools are failing to identify high-ability science students, research shows

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Research by Te Herenga Waka—Victoria University of Wellington Adjunct Professor Azra Moeed MNZM and independent researcher Dr. Jenny Horsley shows Aotearoa New Zealand's smartest young science

students aren't always identified in the school system.

Their research is laid out in a chapter in the [Handbook of Giftedness and Talent Development in the Asia-Pacific](#).

"We were surprised to find that PAT English and Mathematics tests were one of the key ways high-ability science students were identified," says Dr. Moeed, pointing out not all high-ability science students have skills that transfer to other subjects.

Dr. Moeed, from the University's Wellington Faculty of Education, has been teaching and researching science in New Zealand schools for 40 years, and she and Dr. Horsley's research into the identification of high-academic-ability science students was inspired by Professor Sir Paul Callaghan's call for innovation many years ago.

The world's collective response to COVID-19 has relied on top scientists and proves our need to have the best thinkers, says Dr. Moeed. "We need those who can think in new ways about the old and new issues we face in our everyday lives, for us to be able to live a satisfying life."

Other countries have similar issues in identifying high-ability students—some using testing to identify them, others using [teacher](#) observations of [student](#)'s learning behaviors. And this gap exists in primary school education as well.

"We do not have equitable science teaching and learning in [primary schools](#)," says Dr. Moeed, "This is often because the primary teachers are generalists and some don't feel confident to teach science. An unintended consequence of focus on literacy and numeracy in the early 2000s was less time for [teacher education](#) in science."

The academics have also found research into the experience of high-

ability science students in New Zealand's small towns is scarce. Although those in cities can participate in science fairs, or visit the local university and access lecturers, who can support those who reach out to them, those in small towns aren't so lucky.

"In my experience in New Zealand, we are very good at coming up with solutions on a local basis. But identification and provision for equitable access of science education to all high-ability students is needed," says Dr. Moeed.

High-academic-ability students involved in the study, run with several top teachers, said they wanted their teachers to engage them in more practical work that challenges them to think, and helps them understand how science is done and scientific knowledge is created and validated.

"Our science curriculum lecturers model how to generate an interest in and enthusiasm for science through engaging in practical work and science investigation—engagement in science needs to be both hands-on and mind-on."

Primary principals have recently asked the Ministry of Education for more support in providing teachers with better professional development in science and mathematics—including a request to bring back the science advisers that existed to support teachers during the 1990s and 2000s.

New Zealand has produced some great leaders in science, and the opportunity to engage in and learn and excel in science is a reasonable expectation of science [education](#) in New Zealand, says Dr. Moeed.

"We need scientifically literate citizens, but we also need our future [science](#) leaders to be identified, nurtured, and taught so they develop a nuanced understanding of how scientific knowledge is created."

More information: Jenny Horsley et al. How Do Teachers Meet the Academic Needs of High-Ability Students in Science?, *Handbook of Giftedness and Talent Development in the Asia-Pacific* (2021). [DOI: 10.1007/978-981-13-3041-4_33](https://doi.org/10.1007/978-981-13-3041-4_33)

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