

Why Science Education?

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Science education in our schools has traditionally focused on producing a small, but increasing, number of capable boys and girls destined to pursue higher education in science and technology as a step towards professional careers in science and industry. Thus, school science has traditionally been tightly interlocked with university science, with one seen essentially as a preparation for the other, and both having strong vocational and professional objectives—the whole process being concerned with the maintenance of science.

The major characteristic of the traditional pattern, however, was the certainty with which teachers on either side of the 17-plus divide could view and respect each other. The schoolteacher knew what was expected of him, why, and what the product of his endeavours would be capable of when he or she went “up.” The university teacher, when viewing that product, knew that he or she had been well trained and was able to make reasonable assumptions about that training—what content had been taught and at what level of sophistication. The student, too, when considering the transition from school to university, could face the change with confidence that both his former and future teachers were in reasonable agreement with respect to aims and outcomes. As a result, sound guidance could be given—and accepted—and transfer occurred with a minimum of questioning and heart searching.

Within recent decades, however, significant changes have occurred in our schools, which have forced us to review our understanding of the interface between schools and higher education, and perhaps to make explicit the different assumptions that can now be made with respect to the schools. In the face of current changes and reform initiatives, school science is no longer narrowly focused on only preparing students for transition into university. With teacher training programmes such as the Diploma in Education (Dip.Ed.) and the Bachelor of Education (B.Ed.) offered at the School of Education, where the emphasis is on holistic education and curriculum integration, an increasing number of school science teachers are working towards the delivery of a curriculum that will ensure more relevant outcomes.

First, they see school science as a legitimate intellectual, emotional, and humanistic activity for all students, which might lead to a generation of young people who accept willingly that science, in both its method and culture, has something valid to say to them. The view of science as a way of thinking and a way of life is central to this consideration.

Secondly, science teachers are slowly beginning to develop the view that school science must not be taught divorced from the other curriculum subjects, but must be seen to relate

to the social, economic, and political problems of life in a technological society, that is, science as a way of investigating the causes and effects of the social issues of our times as well as identifying possible solutions.

Thirdly, some science teachers see science as being related to and driven by the socio-political processes of the society that supports it. For them, scientific knowledge is a tool—a weapon in the fight against ignorance, poverty, and deprivation. However, this weapon has clear limitations regarding range and potency since much of the progress in scientific discovery is funded and supported by organisations and businesses that often directly influence aspects of the output.

These new emerging trends for science education are revolutionary and far-reaching in their implications, implicitly suggesting that perhaps we are beginning the shift into a new paradigm—one that is less rigid and more accommodating.

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