Science Education Committee

RESEARCH PROJECT TERMS OF REFERENCE

Optimisation of STEM Education Support in Western Australian Schools

PURPOSE

To formulate a strategy and recommendations for the State Government to strengthen STEM education in Western Australian schools through the enhancement and optimisation of formal* and external** STEM education support.

OBJECTIVES

Needs in STEM education

1. develop an increased understanding of the needs of teachers and their students in STEM education at all levels of schooling in Western Australia;

Formal STEM education support

2. identify previous and current formal STEM initiatives in the State and more widely; report on their costs and analyse their outcomes and effectiveness in meeting the needs of teachers and their students;

3. formulate recommendations for new formal initiatives to strengthen STEM education in Western Australian schools, in the context of the Australian Curriculum and the capacity for external support, and propose appropriate bodies and mechanisms for implementation, including sustainable, cost-effective funding;

External STEM education support

4. develop a comprehensive understanding of the existing external STEM education support providers operating within the State and the extent to which this support aligns with the needs of school teachers and students and complements formal initiatives;

5. recommend a mechanism to ensure that STEM teachers, parents, and external STEM providers and supporters (current and potential) can access current and structured information about external STEM education support and propose an appropriate body for implementation and administration;

6. assess the potential for employers of STEM graduates in WA, and other relevant professional organisations, to provide support (in-kind and/or financial) which will strengthen formal STEM initiatives; and

7. formulate recommendations for initiatives to extend and optimise the engagement of external STEM education providers and supporters (both current and potential) to strengthen STEM education in Western Australian schools and propose appropriate bodies and mechanisms for implementation, including sustainable, cost-effective funding.

METHODOLOGY

The project will be overseen by the Science Education Committee.

"formal" refers to the Government, Independent and Catholic education sectors

*** "external" refers to those organisations and groups outside of the schools education system that provide resources and support for STEM education in WA schools.*

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Phase A: Identify the needs (objective 1)

This phase will involve a literature review to identify the needs of teachers and their students in STEM education in Western Australian schools, which should include consideration of the current curricula and the upcoming introduction of the Australian Curriculum. The Committee will provide suggestions for key reports to note including past WA science education reports and findings relating to national research. The review should be submitted to the Committee for their feedback.

Phase B: Formal STEM education support (objectives 2 and 3)

This phase will include a review and analysis of the outcomes of current and previous formal STEM initiatives in the State, assisted by suggestions from the Committee. Consultation should be undertaken with the three formal education systems in the State; the School Curriculum and Standards Authority and relevant teachers' associations such as the Science Teachers' Association of WA and the Mathematics Teachers Association of WA, regarding these formal STEM education initiatives. The consultations should build on findings of previous research and avoid repetition of work. At the end of this phase, an interim report should be submitted to the Committee containing the results of the research and analysis and recommending formal initiatives that will most effectively strengthen STEM education and improve student learning outcomes in Western Australian schools.

Phase C: External STEM education support (objectives 4, 5, 6 and 7)

This phase will include a literature review and analysis and will build on the findings of the Committee's previous report. Consultations should be undertaken with current and potential STEM education support providers (a list to be approved by the Committee) to assess: their views about current STEM education within schools; their interest in participating in coordinated partnerships to enhance specific and generic STEM education; and their willingness to provide in kind and/or financial support to strengthen teaching practice and to enhance student learning outcomes in STEM education. At the end of this phase, an interim report should be submitted to the Committee containing the results of the research and analysis and the recommendations for proposed initiatives to extend and optimise external support for STEM education in Western Australian schools. This report should also propose a mechanism to ensure that STEM teachers, parents, and external STEM providers and supporters (both current and potential) can access structured and up to date information about external STEM education providers,

Phase D: Production of draft report

The draft report should contain all findings relating to the formal STEM education system and external STEM education providers, particularly in terms of needs, gaps, duplication, effective programs and opportunities for them to interact more closely. It should also contain recommendations for the State Government which outline new formal initiatives and opportunities to strength partnerships between the three formal education sectors and external STEM providers and supporters of STEM education. These recommendations should also propose the most appropriate bodies and mechanisms for implementation and administration of new initiatives, including the provision of cost-effective funding. Feedback from the Committee should be incorporated.

Phase E: TIAC approval and production of the final report

Following incorporation of feedback from the Science Education Committee the report will be submitted to TIAC for approval. The final report should be submitted to TIAC within 26 weeks of commencing the project. Following this, amendments may be requested by TIAC. Once the document has been approved by TIAC the successful respondent will have completed the terms of this request.