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Research in Engineering and Technology Education: Staff Perspectives

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This paper explores staff perspectives on research in engineering and technology education. The research performed was an institutional wide study, which looked at the staff barriers, opportunities and relevance of engineering and technology education. The idea of research into engineering and technology education arose from the work by Ernest Boyer through a publication named "Scholarship Reconsidered" referring to the scholarship of teaching and learning [1]. Boyer's goal was to bring research, scholarship and teaching together through a redefinition of four forms of scholarship: the scholarship of discovery, application or the scholarship of engagement, the scholarship of integration, and the scholarship of teaching.

The definition and concept of the scholarship of teaching and learning has been actively pursued for some time now. Kathleen McKinney in her address to the Illinois State University mentions about the challenges faced in tertiary education research [2]. These challenges include the lack of support from the institutions, lack of recognition, value and reward for research into learning and teaching, insufficient training and development, hostility towards staff performing education research, and the isolation of staff involved in tertiary research from the staff conducting traditional discipline research. The lack of recognition for research in learning and teaching at the same level as discipline research has been cited by many researchers in this field [3-6]. Academic staff also face barriers like lack of time to engage in engineering and technology education research due to commitments in teaching and discipline research.

This paper presents quantitative and qualitative results from a university wide research study, which investigated the barriers staff face at Swinburne University of Technology towards developing and performing research in engineering and technology education. The findings from this research illustrate

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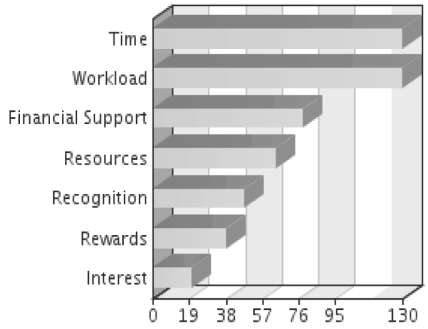
how faculty staff view research in engineering and technology education. The views about how faculty staff perceive research in engineering and technical education are also presented along with the views of the faculty management. The paper also presents the areas in which academic staff require support in growing engineering and technology education research. Figure 1 shows the barriers for staff in performing research in engineering and technology education.



Choices	Absolute Frequency	Relative frequency by choice	Relative frequency	Adjusted relative frequency
Time	130	25.59%	54.39%	75.14%
Workload	130	25.59%	54.39%	75.14%
Financial Support	78	15.35%	32.64%	45.09%
Resources	64	12.6%	26.78%	36.99%
Recognition	48	9.45%	20.08%	27.75%
Rewards	38	7.48%	15.9%	21.97%
Interest	20	3.94%	8.37%	11.56%
Sum:	508	100%	-	-

Fig. 1. Barriers towards research into learning and teaching

Time, workload and lack of financial support have featured as the prominent barriers to the research in learning and teaching. The non-recognition of research in learning and teaching at par with discipline based or fundamental research also figures as a big impediment to research in learning and teaching. There was overwhelming consensus that a community of practice based model will be an effective approach in enhancing the quality of research into learning and teaching. A workload model which will accommodate a time for research in engineering education is needed and seed funding for the projects is also needed. ■

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