Australian Academic Leaders’ Perceptions of the Teaching–Research–Industry–Learning Nexus in Information and Communications Technology Education

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ABSTRACT

Strengthening the teaching-research-industry-learning (TRIL) nexus in information, communications and technology (ICT) education has been proposed as a way of achieving improvements in student learning (Koppi & Naghdy, 2009). The research described in this paper builds on previous work to provide a broader understanding of the potential outcomes associated with the TRIL nexus in relation to ICT education. It presents the results of a survey of Australian ICT academic leaders, designed to clarify the outcomes associated with the TRIL nexus, and to investigate how the synergies associated with it can be better exploited. The results show that the benefits of strong relationships between aspects of teaching, learning, research and industry are recognized and emphasized in Australian universities, but that further action is needed to strengthen relationships with the industry component of the TRIL nexus. Recommendations to help achieve this are made.

Keywords: Industry Involvement, Information Communications and Technology (ICT) Education, Student Learning, Teaching–Research–Industry–Learning (TRIL) Nexus, Teaching-Research Nexus

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INTRODUCTION

Koppi and Naghdy (2009) introduced the concept of the teaching-research-industry-learning (TRIL) nexus in information, communications and technology (ICT) education. This concept brings together research on the teaching-research nexus in higher education (e.g. Healey, 2005b; Marsh & Hattie, 2002) and the many small individual initiatives to integrate aspects of research and/or industry into ICT education that have been described. Koppi and Naghdy (2009) propose that synergies are achievable by strengthening the connections between industry, teaching, learning and research in ICT education.

The vast majority of ICT education studies related to aspects of TRIL have been reports of individual initiatives by those who carried them out (e.g. Pilskalns, 2009; Schilling & Klamma, 2010). While these provide excellent ideas for ICT academics who hope to further integrate research and/or teaching into their academic offerings, they are generally too piecemeal to really guide attempts to strengthen the TRIL nexus, and do not provide a higher level perspective of the importance of TRIL to universities. White and Irons (2009) moved towards this latter goal by comparing ICT academics’ beliefs and experiences relevant to the relationship between research and teaching. Grant and Wakelin (2009) added the role of consultancy to the teaching-research mix, and explored the perceptions of ICT academics about the nexus. The relationships involved in the TRIL nexus in ICT education have been further explored in an extensive meta-analysis of published literature on TRIL related initiatives taken by ICT academics and ICT departments (McGill, Armarego, & Koppi, 2012). Based on the studies analyzed, McGill, Armarego and Koppi (2012) also provided recommendations to support those attempting to strengthen the TRIL nexus in ICT education. The research described in this paper builds on previous work to provide a broader understanding of the potential outcomes associated with the TRIL nexus. It considers how ICT academic leaders perceive the outcomes associated with the concept, including the nature of potential improvements in learning associated with a strengthened TRIL nexus. It also explores how ICT academic leaders perceive the synergies associated with it can be better exploited.

BACKGROUND

The relationships between teaching and research have been comprehensively examined, both in general (e.g. Healey, 2005a; Neumann, 1992; Robertson, 2007) and in various disciplines including ICT (e.g. Grant & Wakelin, 2009; White & Irons, 2007). The many ways in which the relationships between research and teaching have been strengthened in ICT degrees have been summarized by McGill, Armarego and Koppi (2012) and include faculty teaching students about the research of both themselves and others, augmenting the curriculum with research projects, and complete curriculum redesign to integrate research throughout. Healey (2005a) has categorized approaches to integrating research into learning and teaching as having students as audience or participants, and the research focus being on the process of research or research as content. This categorization helps to represent meaningfully the wide variety of approaches.

Whilst the empirical evidence is not overwhelming (Marsh & Hattie, 2002), the consensus of opinion is that compelling benefits can flow from strengthening the relationships between research and teaching and learning. These benefits are believed to include: enhanced knowledge currency; enhanced staff credibility; increased student enthusiasm and motivation; and a strengthened sense of professional identity (Healey, Jordan, Pell, & Short, 2010; Hunter, Laursen, & Seymour, 2007; Lindsay, Breen, & Jenkins, 2002). In ICT education the following additional possible benefits have been highlighted: increased likelihood of students pursuing graduate degrees; increased student
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