The return on school leadership preparation and development programmes

A study on Australian university-based programmes

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Abstract

Purpose – This paper highlights the potential value of "return on investment" analysis for leadership development investment methods to better providing research informed decision regarding improving organisational outcomes.

Design/methodology/approach – Working with published research on leadership dimensions with greatest impact on student outcomes, return on leadership development formula, and empirical research on Australian university-based educational leadership programmes, this paper demonstrates an illustrative example of estimating the return on leadership investment.

Findings – Using an illustrative example of Australian university-based educational leadership programmes, this paper argues that methodologies for estimating the return on leadership development offers a powerful tool for making research informed decisions at the individual, organisational and systemic levels.

Research limitations/implications – This paper provides the basis for substantial further work on the measures of impact of leadership preparation and development such as matters of duration of effect, instrumentations of quality, costing and causal models of effect.

Practical implications – The methodology demonstrated in this paper provides a basis for individuals, organisations and school systems to make decisions regarding the resourcing, or not, of school leadership preparation and development.

Social implications – The methodology demonstrated in this paper provides a basis for individuals, organisations and school systems to make decisions regarding the resourcing, or not, of school leadership preparation and development.

Originality/value – The application of return on investment analysis has been rare in educational leadership preparation and development programmes and its value opens up information for rigorous debate on the resourcing, or not, of programmes by systems, government and individuals.

Keywords Australia, Education, Leadership, Preparation, RODI, University-based programmes

Paper type Research paper

Introduction

On a global scale there is unprecedented interest in improving the quality of school education, and particularly student outcomes. Embedded within current government education – especially school-based – reform initiatives is an assumption that leaders, and leadership, matters. This assumption has widespread appeal and is supported by contemporary discourses in the field. Researchers such as Leithwood *et al.*, 2008 have

consistently argued that leadership is second only to classroom teaching in improving school outcomes. However, unlike England and Wales who have mandated a minimum national qualification prior to appointment to school leadership posts, or the requirement of a Master's degree or doctorate in educational administration such as in many states in the USA, Australia has continued to utilise an "apprentice" model (Su *et al.*, 2003). Although it has been argued that post-graduate programmes are a general (if unwritten) expectation for aspiring school leaders (see Dinham *et al.*, 2011), with the proliferation of systemic programmes and short courses to meet the professional standards movement and government policy reforms, any such claim is contested. For the most part, across the nation school leaders begin their careers as teachers and progress through a series of middle management posts, such as assistant and deputy principal, without necessarily undertaking any specific preparation and/or development programmes for the nature of educational leadership, management and administration required of school leadership. However, as articulated by the Industry Taskforce on Leadership and Management Skills Australia in The Karpin Report (1995), "permanency of reform and constructive change will depend on recognition that excellent leaders and managers require well structured, systematic education and continual development" (p. 2).

While past Australian studies on school leadership preparation and development have concentrated on the teaching of educational administration in universities (Bates and Eacott, 2008; Eacott, 2012), university programme development (Gamage, 2006); particular school leadership preparation initiatives (Clarke and Wildy, 2010; Clarke *et al.*, 2011); or small-scale – usually single state – overviews (Anderson *et al.*, 2008; Dinham *et al.*, 2011; Eacott, 2011), this paper is explicitly concerned with the development of an impact measure for school leadership preparation and development programmes. In doing so, this paper brings into conversation existing knowledge on school leadership dimensions with the greatest impact on student outcomes (see Robinson *et al.*, 2008) and economic discourses of return on development investment (Casico and Bourdreau, 2008), specifically, leadership development (Avolio *et al.*, 2010). This perspective locates the paper, and larger project, within an emerging body of literature on the characteristics of quality educational leadership preparation and development programmes (see Orr and Orphanos, 2011; Smylie *et al.*, 2005) in the context of thin evidence on the impact of school leadership on student outcomes, and even scarcer work on the impact of preparation and development programmes (Corcoran *et al.*, 2012).

Through its focus on the potential impact and economics of leadership preparation and development programmes, this paper argues that after a period of growth in provision the time has come to ask questions of programme quality and impact. In making this argument I put forth a methodology for assessing the return on investment of school leadership preparation and development programmes. Working with published data from meta-analysis (Robinson *et al.*, 2008), an established return on development formula (Casico and Bourdreau, 2008), and data generated through an audit of publicly available unit descriptions from current educational leadership programmes at Australian universities, the purpose of this paper is to demonstrate how an example of return on investment can fruitfully inform government, education systems, schools, individuals and providers to make research informed decisions regarding the provision of school leadership preparation and development. However, it is important to note, that I am not suggesting that there is any single best method for calculating the return on investment of programmes, nor that further empirical research is not needed to advance both the science and practice of leadership development.

The project

The Learning in Educational Administration Preparation (LEAP) project is part of a larger inter-disciplinary research programme investigating leadership preparation and development in the education sector (blinded for review). The specific programme aims are to:

(1) evaluate the quality of current school leadership preparation and development activities;

(2) propose a theory of leadership preparation and development; and

(3) devise a series of research informed policy recommendations that centre on advancing the quality of school leadership preparation and development in the context of national, and international, productivity agendas.

Applied research, such as this, focused on improving the quality of educational administration has the potential multiplier effect to benefit thousands of teachers and potentially millions of children. Significantly, education is a key aspect of national micro-economic reform. As Jensen (2010) argues, a 10 per cent increase in school performance would lift Australia's education system into the highest performing group of countries in the world – using the Programme for International Student Achievement (PISA) and Trends in International Mathematics and Science Study (TIMSS) as the measure. This is important information in the context of the Federal Government's ambitious agenda ranked in the top five school systems internationally by 2025. In the long term, this would improve the productivity of the Australian workforce, "increasing economic growth by $90 billion by 2050, and making Australians 12% richer by the turn of the century" (Jensen, 2010, p. 4). To engage with the research aims of this project requires an inter-disciplinary approach drawing from a diverse, but carefully chosen, range of analytical techniques to work with the generated data. I argue that it is only through such an approach that high-quality research informed recommendations can be made for policy, practice and further research. It is, however, to be noted that this paper draws from the initial phase of the project, and by virtue engages only the first research aim in the specific context of Australia.

Working within mainstream educational leadership, management and administration discourses, the existing provision of leadership preparation and development programmes in Australian universities were audited and evaluated, consistent with the first research aim. This phase of the research has questions operating at two levels: the provision of leadership preparation and development programmes, and second their quality. More specifically:

RQ1a: What leadership preparation and development programmes are currently offered for current and aspiring educational leaders in Australian universities?

RQ1b: To what extent do existing programmes focus on identified dimensions of effective educational leadership?

To compile a comprehensive listing of educational leadership, management and administration programmes offered, a systematic search of university web pages was undertaken. Any taught – as opposed to research – academic programme (graduate certificate, diploma, Master's) aimed at current or aspiring educational leaders during the 2011 calendar year was of interest for this analysis. As much information about programmes and related units (alternate labels include: courses; papers; among others), but primarily unit descriptions were collected. These data provide a survey of the provision of educational leadership, management and administration programmes across the nation.

The improvement and support of educational leaders, like so many aspects of education, depends on a clear conception of what counts as quality, a question that has been notoriously difficult to answer at all levels of education. Consistent with calls to revise selection approaches and preparation and development programmes against evidence of capabilities required for effective leadership, this next of the project draws on Robinson *et al.*'s (2008) work that identifies five leadership dimensions that have the greatest impact on student outcomes. The selection of the Robinson *et al.*'s (2008) framework for this analysis is based on two reasons: first, the work won the prestigious William J Davis Award for most outstanding research published in *Educational Administration Quarterly*, arguably one of the field's leading journals internationally; second, the work is a meta-analysis of studies investigating the impact of leadership on student outcomes, making the findings of explicit significance for the purpose of our project. Robinson *et al.*'s (2008) work is recognised as focusing on a central question of the field – the impact of school leadership on learning – and significantly advancing dialogue in the field through its unique contribution and methodology. The identified dimensions (effect size and standard error measure) are:

- *Establishing goals and expectations* (ES = 0.42, SE = 0.07): includes the setting, communicating and monitoring of learning goals, standards and expectations, and the involvement of staff and others in the process so that there is clarity and consensus about goals.
- *Resourcing strategically* (ES = 0.31, SE = 0.10): involves aligning resource selection and allocation to priority teaching goals. Includes provision of appropriate expertise through staff recruitment.
- *Planning, co-ordinating and evaluating teaching and the curriculum* (ES = 0.42, SE = 0.06): direct involvement in the support and evaluation of teaching through regular classroom visits and the provision of formative and summative feedback to teachers. Direct oversight of curriculum through school-wide coordination across classes and year levels and alignment to school goals.
- *Promoting and participating in teacher learning and development* (ES = 0.84, SE = 0.14): leadership that not only promotes, but directly participates with teachers in, formal or informal professional learning.
- *Ensuring an orderly and supportive learning environment* (ES = 0.27, SE = 0.09): protecting time for teaching and learning by reducing external pressures and interruptions and establishing an orderly and supportive environment both inside and outside classrooms.

The individual units identified in Part 1a of the research are subjected to analysis as to whether they demonstrate evidence of the five leadership dimensions using a binary coding protocol of yes or no (1 and 0, respectively). To strengthen the quality of the data generated, two members of the project team coded the data independently and inter-rater reliability (IRR) and inter-rater agreement (IRA) scores were generated. Due to the nature of the data (two possible outcomes and two raters), Cohen's (1960, 1968, 1988) unweighted κ was used to generate a score. Cohen's κ measures the agreement between two observers who each classify N items into mutually exclusive categories. The formula applied is:

$$\kappa = \frac{\Pr(a) - \Pr(e)}{1 - \Pr(e)}$$

where Pr(a) is the relative observed agreement among observers, and Pr(e) is the hypothetical probability of chance agreement, using the observed data to calculate the probabilities of each observer randomly saying each category. If the observers are in complete agreement then $\kappa = 1$. If there is no agreement among the observers other than what would be expected by chance (as defined by Pr(e)), $\kappa = 0$.

The generated data from the units are then aggregated at the degree level as a means of establishing a Programme Impact Measure (PIM). The PIM uses the degree-level mean ($\bar{x}$) for each dimension as a function of the effect size (ES) established for that dimension in the work of Robinson *et al.* (2008). The PIM is the degree-level mean of each dimension mean multiplied by the effect size, or, in formulaic terms:

$$\text{PIM} = \frac{(\text{MD1} \times 0.42) + (\text{MD2} \times 0.31) + (\text{MD3} \times 0.42) + (\text{MD4} \times 0.84) + (\text{MD5} \times 0.27)}{5}$$

where MD1 is the mean for dimension one, which is then multiplied by the effect size for that dimension (0.42). This is repeated for each dimension, with the total divided by five (as there are five dimensions). In the absence of experimental evidence on the impact of trained vs untrained cohorts, it is argued that this is an appropriate proxy for establishing the degree of difference between participating and non-participating individuals. Such information is important to establish research informed decisions regarding investment in leadership preparation and development. This is of course mindful that further inquiry is warranted on the impact of leadership preparation and development.

Avolio *et al.* (2010) contend that unlike when making capital investment decisions, organisational leaders rarely give the same level of expectation to investments in leadership preparation and development. Working from the data generated thus far, and drawing from economic discourses, the next aspect of the research programme involves work around "return on leadership development investment" (see Avolio *et al.*, 2010; Casico and Bourdreau, 2008). Specifically utilising Casico's formula, this phase of the project asks:

RQ1c: What is the return on school leadership preparation and development investment?

Casico's formula is similar to other return on investment equations in that the expected financial cost of investment (in this case, educational leadership preparation and development) is subtracted from the expected financial increase from the specific investment. This number (overall change, increase or decrease) is then divided by the overall initial investment cost. The product is a rate of return or return on development investment. The data that are typically required to calculate the return on investment include: the number of people going through training; the costs of training; the expected effect of training and duration of that effect; as well as the estimated dollar value impact for those who have gone and not gone through the intervention. Casico's formula consists of the following:

$$\text{RODI} = NTd\text{SD}_\gamma - C$$

where N is the number of participants in development intervention, T is the expected time duration of change in leadership behaviours (converted to fraction in years such that one year and six months would be 1.5), d is the effect size of the intervention, also

considered as the average difference in outcomes between training participants and untrained counterparts, SD_γ is the standard deviation valued job performance among untrained employees. When dollarised performance metrics are not available (such as in this case), the performance metric may be a function of 40 per cent of annual salary. In this case, 40 per cent of one's annual salary is a conservative estimate of that individual's dollar value to the firm in terms of performance, and C is the total cost of training the expected number of participants.

Avolio *et al.* (2003) estimate that only 10-20 per cent of organisations that explicitly invest in leadership development ever evaluate the effectiveness of programmes in relation to any performance outcomes. The project from which this paper draws, and specifically the methodology being put forth here are part of an agenda to equip government, school systems, schools, individuals and providers with a means to assess the quality of programmes. As noted previously, I am not suggesting that this is the only method for conducting such work, but in the relative absence of work in the area (especially in relation to school leadership preparation and development) yet the growth of provision, it is timely that methods for assessment and evaluation of programmes are developed.

Findings
This paper seeks to provide an illustrative example of how this methodology can be mobilised to engage with the provision, quality and return on investment of school leadership preparation and development programmes. Therefore, rather than engaging in a comparison among Australian university programmes, this paper works at the collective level (national average) to provide an illustrative case for what the "return on investment" method can offer. This section is divided up to align with the three research questions related to the first aim of the project.

Current provision of programmes
This research found that 26 of the 39 Australian universities offered programmes in educational leadership, management and administration. This is an increase on the 22 universities offering programmes identified by Bates and Eacott (2008) not too many years ago. There is clearly a perceived need for programmes in educational leadership in Australia, and combined with the proliferation of alternate delivery modes (e.g. on-campus, online, blended, summer school, among others), such programmes are potentially very lucrative for institutions. In an interesting observation on the changing provision of educational leadership programmes in Australia, and particularly Melbourne, Gronn (2008) argues that the expansion of programmes, and the dynamics of the market, has actually reduced diversity in offerings and programmes instead have become more standardised. It is beyond the scope of this paper to discuss the standardisation, but this will be pursued in ongoing work. That being said, across the 26 programmes, and 221 individual units, there is little divergence in programme titles. While some universities have opted for a Master of Educational Leadership ($n = 8$; with a few including the dual "Leadership and Management" – $n = 2$), most Australian universities have an educational leadership path embedded within the generic Master of Education ($n = 18$). Some variations in the specialisation sub-title of degrees include: "School Leadership" (Monash, University of New England), "Leadership, Policy and Change" (Monash), or even a tailored programme aimed at systemic leaders entitled "Systems Leadership" (Australian Catholic University).

This analysis is, however, specific to a context. That is, in both time and space. As is often the case with the contemporary university, programme (and units) are dynamic entities, frequently morphing to reflect changes in internal demands such as staffing profiles and external demands such as shifting systemic and governmental priorities (read potential students), not to mention the faddism of labels (e.g. "leadership", "management", "administration" or a combination of them). Further analysis on the provision of programmes and courses will be pursued elsewhere by the project team. My attention now turns to the analysis of what is offered compared to existing knowledge on leadership dimensions with greatest effect on student outcomes.

The quality of programmes
Each individual unit identified in the initial audit phase of the project was coded against the five dimensions of leadership having greatest effect on student outcomes as identified by Robinson *et al.* (2008). As noted previously, however, any framework for leadership can be substituted into the analysis. This is the strength of the argument. It is the process rather than the individual frameworks or formula mobilised that is most important.

Two members of the project team did the coding, first independently (this allowed for the Kappa (κ) score to be calculated), then coming together to discuss and reach a consensus (this allowed for analysis of the data). As noted previously, each course was coded using a binary yes or no (1 or 0, respectively). Table I provides illustrative example of courses coded positively for each dimension. This approach to coding is consistent with diagnostic research in the health sciences.

Across the coding there were 1,105 individual coding opportunities (221 courses and five dimensions). The two coders operated at a 92.93 per cent level of exact agreement (87.33-97.30 per cent for individual dimensions). The $_K$ overall was 0.7003 (SE 0.0276; 95 per cent CI 0.6462-0.7543). Table II displays the institution-level means (as opposed to individual unit means), with the number of units included. As is quickly evident, the institutional means are not particularly high (0.0000-0.4615 range), with national means of 0.1041, 0.1086, 0.1946, 0.1946 and 0.0496, respectively, across the five dimensions identified by Robinson *et al.* (2008). As a result of the nature of the sample (e.g. its size), the standard deviation (σ) is relatively large compared to the mean. This standard deviation is used to establish the range (low, average and high) of returns for programmes used in a later stage of the analysis. That is, to establish the "low" and "high" return we used ± 1 SD.

These data are then mobilised to construct a PIM. There are two layers of work undertaken in relation to constructing the PIM. First, as noted above, ± 1 SD is used to set the parameters of the low, average and high-potential returns on programmes. This move remains central in the remainder of the paper. Second, these established scores are multiplied by the effect size identified by Robinson *et al.* (2008), and then collated to produce an impact score. As an illustrative example, Table III displays this process using the national-level means from Table II. Using the method cited above, a school leader undertaking an average impact university-based school leadership preparation and development programme would be 6.72 per cent better at improving student outcomes than someone not undertaking a programme. A low impact (-1 SD) would result in an 8.96 per cent loss in performance, and a high-impact programme a 22.40 per cent performance improvement. Concurrent work investigating New Zealand university-based programmes by the larger project team found an average impact of 4.10 per cent (but this is significantly influenced by the sample size). The low-impact

Dimension	Course title	Description
Establishing goals and expectations	Leading a learning community	This subject examines the leadership necessary for developing a learning community. Candidates focus on topics and skills such as collaborative decision making and problem solving; conflict management and negotiation; and team dynamics. Understanding the importance of setting standards, performance monitoring and feedback are also examined
Resourcing strategically	Human resource management in education	Strategic management of human resources is a key responsibility of leaders at all levels of educational organisations. Participants extend their understanding of the nature and inter-relationships of human resource management functions (including recruitment, induction, continuing professional development, leadership development, performance management and legislative compliance) and critically reflect on how these contribute to the development of productive work environments and attainment of organisational goals
Planning, co-ordinating and evaluating teaching and the curriculum	Leading learning communities	In this subject, students will be exposed to theories and practises that enable team-based and organisation-wide learning to occur. Students will develop a theoretical and practical understanding of the use of data and assessment in creating learning communities. Assessment practices will also be explored in relation to how they can be utilised to improve learning outcomes at both the individual and school level. The use of instructional rounds – learning to see, learning to judge – approach will be explored as a system wide practise that can create and share knowledge. The importance of distributed leadership and teachers as leaders of instruction will be considered
Promoting and participating in teacher learning and development	Mentors and mentoring	The role of mentoring in leadership and teacher development is now highly regarded as an effective development tool. This subject recognises the importance of this process and provides a theoretical framework to assess current literature in the area and understand its applications in an international context. Students will build on their theoretical understandings to design and implement mentoring programmes in their work situation. This process will have particular emphasis on the role of principals in staff and collegial professional development. The work embedded nature of this process will contribute to leadership effectiveness based on sound conceptual understanding. The evaluation of such programmes is a key element of the subject. Students will develop their skills in their role as leader of a mentoring process, as a mentor and as a recipient of this mode of support. Students will study selected and structured mentoring programmes both locally and internationally

Dimension	Course title	Description
Ensuring an orderly and supportive learning environment	Curriculum leadership and management	This subject focuses on the leadership and management competencies necessary to create an effective environment to enhance student learning and success. Topics include: teaching and learning methodologies; assessing student needs; staff development; curriculum administration and structure; computer-based learning; organisational culture; and assessment and reporting

Table I.

| Institution (courses) | Robinson *et al.*'s (2008) dimensions of effective leadership | | | | |
	1	2	3	4	5
University A (16)	0.0625	0.0625	0.1250	0.1875	0.0625
University B (13)	0.1538	0.0769	0.1538	0.4615	0.0769
University C (8)	0.1250	0.0000	0.2500	0.3750	0.1250
University D (7)	0.0000	0.2857	0.2857	0.2857	0.1429
University E (12)	0.2500	0.2500	0.0833	0.1667	0.1667
University F (6)	0.3333	0.0000	0.5000	0.1667	0.0000
University G (8)	0.1250	0.2500	0.0000	0.1250	0.1250
University H (11)	0.2727	0.3636	0.1818	0.3636	0.0909
University I (13)	0.0769	0.0769	0.0000	0.1538	0.0769
University J (6)	0.0000	0.1667	0.0000	0.0000	0.0000
University K (4)	0.2500	0.0000	0.2500	0.2500	0.0000
University L (5)	0.0000	0.0000	0.2000	0.2000	0.0000
University M (7)	0.0000	0.0000	0.1429	0.1429	0.0000
University N (19)	0.1053	0.2105	0.3158	0.2632	0.1053
University O (7)	0.0000	0.0000	0.1429	0.1429	0.0000
University P (10)	0.1000	0.1000	0.4000	0.1000	0.0000
University Q (15)	0.0667	0.0000	0.0667	0.0000	0.0000
University R (7)	0.0000	0.1429	0.0000	0.2857	0.0000
University S (5)	0.2000	0.0000	0.4000	0.2000	0.0000
University T (6)	0.1667	0.0000	0.1667	0.0000	0.0000
University U (7)	0.2857	0.0000	0.1429	0.0000	0.0000
University V (7)	0.0000	0.0000	0.4286	0.1429	0.0000
University W (3)	0.0000	0.0000	0.0000	0.3333	0.0000
University X (7)	0.0000	0.0000	0.2857	0.1429	0.0000
University Y (9)	0.0000	0.2222	0.4444	0.2222	0.0000
University Z (3)	0.0000	0.3333	0.3333	0.3333	0.0000
Australian Average	0.1041	0.1086	0.1946	0.1946	0.0498
SD	0.3060	0.3118	0.3968	0.3968	0.2180
95% CI	0.0637-0.1444	0.0675-0.1497	0.1423-0.2469	0.1423-0.2469	0.0210-0.0785
κ	0.5375	0.8720	0.6219	0.8541	0.5130
SE	0.0617	0.0617	0.0617	0.0617	0.0617
95% CI	0.4166-0.6583	0.7511-0.9928	0.5011-0.7428	0.7332-0.9749	0.3921-0.6338

Table II.
Evaluation of Australian university-based educational leadership programmes

measure, which results in a loss, needs to be understood in the context of the method. While it is arguably difficult to claim that someone undertaking any form of professional development is worse at achieving something that an individual not undertaking the same professional learning, this argument is explicitly built on

Dimensions	x̄	d	Impact	PIM
Low				
Dimension 1	−0.2020	0.42	−0.0848	
Dimension 2	−0.2032	0.31	−0.0630	
Dimension 3	−0.2022	0.42	−0.0849	−0.0896
Dimension 4	−0.2022	0.84	−0.1698	
Dimension 5	−0.1682	0.27	−0.0454	
Average				
Dimension 1	0.1041	0.42	0.0437	
Dimension 2	0.1086	0.31	0.0337	
Dimension 3	0.1946	0.42	0.0817	0.0672
Dimension 4	0.1946	0.84	0.1635	
Dimension 5	0.0498	0.27	0.0135	
High				
Dimension 1	0.4101	0.42	0.1722	
Dimension 2	0.4204	0.31	0.1303	
Dimension 3	0.5913	0.42	0.2483	0.2240
Dimension 4	0.5913	0.84	0.4967	
Dimension 5	0.2677	0.27	0.0723	

Table III.
Programme impact
scores at the lower,
average and upper bands

economic terms. Therefore, without sufficient value-added performance as a result of the financial investment in the programme, a government, school system or individual may not be wise to invest. A larger issue this raises, and the argument of the paper does for that matter, is the commodification of education and learning in economic terms. Engaging in such a dialogue, while important and touched on later, is somewhat antithesis to the paper. But such a condition is recognised and being developed by the project team.

Return on leadership development analysis
The ultimate goal of this research project is to produce a methodology to assess the return investment for school leadership preparation and development, as measured by improving student outcomes. Building from the previous analysis, this section seeks to engage with the return on investment for a teacher, assistant principal and principal undertaking a university-based programmes. To undertake this analysis requires the input of salaries for the three different levels of the organisation. Drawing upon New South Wales (the largest – per population – state of Australia) salary levels, a primary school principal salary of $136,000, assistant principal salary of $100,000 and the top of the scale teacher salary of $87,000 is used. Recognising that the majority of participants undertaking coursework masters programmes do so part-time over two years (as most remain working full-time in school-based positions during candidature), the assumption for duration of effect in this analysis is twice the duration of the programme, or four years. This is contestable, but as argued later in the paper, what is of greatest importance for this argument is the methodology, the inputs can be manipulated as needed. I have employed a base $10,000 costing for programmes in recognition of the average advertised cost of Australian university-based programmes. This is the cost for domestic students as opposed to the larger costs for international students but it is beyond the scope of this paper to engage with issues of cross-cultural validity and the utility of effect in different cultural contexts than that which they were

established. Table IV displays the estimated return on investment in school leadership preparation and development programmes depending on the salary level of the participant (teacher, assistant principal and principal), the number of people trained (1, 5, 10, 25, 50, 100), and a low, average or high impact on performance. The illustrative selection of 1, 5, 10, 25, 50 and 100 people trained is arbitrary. They are used as mere examples to enable calculating a return value. As noted many times throughout the paper, the inputs can be manipulated to suit individual needs. Casico and Bourdreau's (2008) return on development investment formula enables us to calculate a dollar value proxy for this return on leadership development. As can be seen in Table IV, in the illustrative example, for the most part, the return on investment is a positive dollar value in work performance, at least for assistant principals and principals. The conversion of a percentage improvement in student outcomes into a dollar value is a contestable proposition. For some, it is counter to the very nature of education and part of a broader commodification of education within the managerialist project of the state. However, given the universal language of numbers, that which can be understood across disciplinary, and more importantly public, discourses, combined with extensive (and arguably ongoing) funding cuts to the public sector, it is timely for education researchers to engage with such discourses. After all, if education researchers do not engage with such matters those outside of education will do so for them. In Australia we are already seeing government policy offering reward payments for school achieving higher than expected improvements in student outcomes ($75,000 for primary/elementary schools and $100,000 for secondary schools). Instructional leadership, that which is explicitly focused on instruction and the improvement of student outcomes, is now central in government education reform agendas not only in Australia but also the USA and many – if not all – nations.

| | | Return on investment | |
Number of participants	Low return	Average return	High return
Teacher			
1	(22,472)	(645)	21,180
5	(112,362)	(3,228)	165,904
10	(224,723)	(6,457)	211,808
25	(561,808)	(6,144)	529,520
50	(1,123,616)	(32,288)	1,059,040
100	(2,247,232)	(64,576)	2,118,080
Assistant principal			
1	(24,336)	752	25,840
5	(121,680)	3,760	129,200
10	(243,360)	7,520	258,400
25	(608,400)	18,800	646,000
50	(1,216,800)	37,600	1,292,000
100	(2,433,600)	75,200	2,584,000
Principal			
1	(29,497)	4,622	38,742
5	(147,485)	23,113	193,712
10	(294,970)	46,227	387,424
25	(737,424)	115,568	969,560
50	(1,474,848)	231,136	1,937,120
100	(2,949,696)	462,272	3,874,240

Table IV.
Return on investment by salary level and number trained

Discussion
The findings presented above show a wide range of returns on university-based school leadership preparation and development programmes. Working with the assumptions of the paper, the methodology produced a range of returns from negative through to very high. An underlying argument at play in this paper (and project) is that in the contemporary context it is no longer appropriate for providers, whether they are universities or not, to contend that leadership preparation and development is a subjective activity, the value of which cannot be quantified. This is, however, not to suggest that leadership preparation and development programmes should, or even need to, be cost effective or efficient, as English (2006) argues creativity and innovation may never be cost effective. That being said, we are in a particular time and space when it is no longer inappropriate to ask what is the value/impact/effect of a programme and on what data can that be validated? This is not to say that there will ever be a simple answer, but rather that by asking the question, and by virtue placing pressure on providers to present such evidence will, as Avolio *et al.* (2010) suggest, enhance both the practice and science of leadership development.

The benefit of the methodology presented in this paper is that it is not limited to the Robinson *et al.* (2008) framework. In fact, any leadership framework and related effect sizes can be mobilised within the methodology. As noted previously, any element of the return on leadership development equation can be substituted based on context. One aspect that warrants further scholarly attention is the impact of programmes over time. One argument put forth in Casico and Bourdreau (2008) is that there is potential for diminishing effect over time. Avolio *et al.* (2010) contend that the effect could be linear, curvilinear negative, curvilinear positive, triadic, quadratic or an exponential calculation, and this is something that can be taken up in further research. In addition, given the diversity among school leadership preparation and development activities, the comparability across university-based programmes and systemic programmes is complex. One way to engage with this argument is to use "hours" as a reference point. For the most part, systemic programmes operate over a given number of hours, likewise, university-based programmes have a nominal hours allocation (constituted through a combination of face-to-face, online and personal study). What we see is a methodology that has considerable flexibility and diversity in engaging with matters of investment/resourcing of school leadership preparation and development at the individual, organisational and systemic levels. There is also a wider question about the quality of faculty/staff teaching such programmes.

One of the enduring questions in this space is the contested terrain of equating educating with dollar values. There is no simply answer in this case. One thing I will raise, however, is that education for the most part draws on public funds. Public school systems, and increasingly the non-public school system, are largely financed by government funds and investment from parents, the community and private sector. That is, educators are public servants and there is a degree of accountability that comes from using tax payer funds as a primary salary source. Therefore, a methodology which enables educators to provide research informed evidence on the use of investment is a particularly powerful tool.

Conclusion
This paper has sought to demonstrate a methodology for estimating the return on school leadership preparation and development programmes and by virtue, change the way that individuals, institutions and systems think about resourcing. There is clearly

great scope for further research in all elements of the return on leadership development investment formula to provide more rigorous measures of individual contributing elements. This would provide a more scientific basis for resourcing decisions to be made at all levels of investment in leadership preparation and development. In addition, the methodology presented in this paper provides those offering programmes with a mechanism to validate their own programmes and make research informed claims regarding its potential impact on schools, and particularly student outcomes. Ultimately, any research that provides the opportunity for anyone in the fields of leadership and organisational development to better understand and advance both the science and practice of leadership and organisational development cannot be bad.

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