Efficacy of educational programs and interventions

Kevin Wheldall

The move towards evidence-based practice in education has been accompanied by an increasing demand for evidence of efficacy of educational programs and interventions. Unfortunately, given the decline of scientific research in education over recent decades, in favour of more theory driven approaches, such empirical evidence of efficacy is often thin on the ground. In exasperation with the tardiness of the US Government-backed ‘What Works Clearinghouse’ (www.w-w-c.org) in issuing recommendations of effective educational programs, for example, the website has been dubbed the ‘Nothing Works’ Clearinghouse by some critics!

There is a danger that such a cynical view will play into the hands of those who eschew recommendations based on scientific evidence in favour of policies that are more ideologically driven. Noting the aphorism that ‘nature abhors a vacuum’, any perceived gap in the market will quickly be filled and by policies and practices for which there is no evidence. Given the relative paucity of acceptable scientifically conducted efficacy studies in education, perhaps there is a need to consider a more measured approach, at least initially, in our determination of the acceptability of programs and interventions; as to what constitutes evidence-based practice, in fact.

When considering the many and various educational programs and interventions promoted, the evidence in their support varies considerably. There are programs that are conceptually consistent with the available scientific research evidence in terms of the best practice they advocate. There are (fewer) programs that, in addition to this, have empirical evidence for their specific efficacy. Some (a minority) of the latter can also point to true randomised controlled trials demonstrating efficacy – the so-called ‘gold standard’. On the other hand we have programs that make no conceptual sense in the absence of any supporting scientific research evidence and have no or very dubious specific evidence.

Level 1. Research-based and makes conceptual sense in terms of current research and theory plus independent randomised controlled trials providing strong evidence for specific program efficacy.

This is the ‘gold standard’ to which all programs and interventions aspire and such programs and interventions may be recommended with confidence. Unfortunately, they are very few in number.

Level 2. Research-based and makes conceptual sense in terms of current research and theory but the empirical evidence for specific program efficacy is more limited and may not include fully randomised control trials.

This would count as ‘very promising’ and such programs could be recommended with reasonable confidence. It constitutes a ‘silver standard’, pending the collection of stronger evidence.

Level 3. Research-based and makes conceptual sense in terms of current research and theory but little or no empirical evidence for the specific efficacy of the program.

Clearly, there is a need for supportive empirical evidence of specific program efficacy before such a program can be wholeheartedly recommended for wide application but it may be ‘worth a try’ because it, at least, makes conceptual sense. This is the minimum basis for program recommendation and constitutes the ‘bronze standard’.

Level 4. Not research-based and makes no conceptual sense in the light of current research but may claim empirical evidence for specific program efficacy.

Such programs should not be adopted without further substantial empirical evidence for their efficacy and do not meet even the lowest standard of acceptability. Proponents of such programs should be invited to provide specific evidence, or at the very least cite supporting generic scientific research evidence, or desist from making their claims. This is the ‘brass standard’. (When highly polished it might superficially resemble gold but is soon shown not to be so, on closer examination.)

Level 5. Not research-based and predicated on assumptions counter to substantial scientific evidence to the contrary such that any empirical evidence offered should be viewed with considerable scepticism.

Such programs should not only not be adopted but the public should be warned that the programs are unlikely to be effective and, rather than meeting any standard, should be regarded as requiring the educational equivalent of a ‘health warning’. At best this is the ‘tin standard’.

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for program efficacy. There are even programs that are predicated on assumptions counter to substantial scientific evidence to the contrary (and thus where there is evidence offered of specific program efficacy, this must be treated with great suspicion).

We might, in fact, posit a sliding scale of levels of acceptable interventions, similar perhaps to the Australian Travel Advisories, as shown in the breakout box. In order to put some flesh on the bones of the skeletal model proposed, we might consider where currently known educational programs and interventions might be located among the levels. The examples given all relate to reading instruction but the same system may be applied to programs and interventions in maths, language, behaviour management and so on.

Reading Recovery must be one of the most influential, widely known and promoted educational interventions ever, but where would it sit in our levels? There are relatively few randomised controlled studies of its efficacy. The ‘What Works?’ site has recently given it a positive report but this is based on only a handful of studies, having rejected many others and not always on a factually accurate basis. Reading Recovery makes only limited conceptual sense, however, since it appears to have remained largely unchanged over the past 30 years, in spite of the considerable body of scientific evidence accumulating over that period as to how reading works and is best taught. While the ‘What Works?’ site clearly regards it as Level 1, some might argue for a lower level (see Reynolds & Wheldall, 2007 for a recent review of studies on Reading Recovery).

A program such as Jolly Phonics, however, being based on the most up-to-date research evidence, making clear conceptual sense, and having supportive specific evidence for specific program efficacy based on randomised controlled trials would be a strong candidate for a Level 1 grading (see, for example, Stuart, 1999).

We might then consider programs that are predicated on sound scientific research evidence but for which there is little or no specific evidence for efficacy. There are a number of seemingly sound phonics-based programs that would fit into this category. They would tend to be located at Level 3.

But what about programs such as the widely promoted treatment offered by the Dore Centres, formerly known as DDAT, which claim to achieve extraordinary results in the treatment of dyslexia. (Claims are also made for the success of the method in treating ADHD and even Aspergers, also, but they will not be considered here.) The treatment proposed by the Dore Centres appears to be essentially predicated on a widely discredited model, the perceptual motor program. Such programs have a long and far from illustrious history in special education. In spite of considerable accumulated evidence that such programs are ineffective, they resurface every decade or so under a different name or guise. Moreover, the two scientific studies of Dore’s efficacy published in a refereed scientific journal (Dyslexia) have subsequently been severely challenged and criticised by numerous reading researchers and Nature, arguably the most influential science journal in the world, has seen fit to publish a cautionary editorial (Nature Neuroscience, 2006). Dore, then, would probably currently locate at Level 4, or even 5, on the proposed scale.

LDA members and others are encouraged to offer rankings of other educational problems using the proposed scale.

References

Correspondence: kevin.wheldall@mq.edu.au

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