Portfolio Committee No. 3 – Education

Inquiry into education for students with a disability or special needs in New South Wales schools

Hearing: Monday 3 April 2017

Supplementary questions for Ms Carol Barnes

1. What are the barriers and concerns faced by the public and academics in raising issues with the efficacy or standards of education [*in*] programs such as Reading Recovery, Arrowsmith, Brain Gym, Cellfield, Cogmed, Fast ForWord, Colours Glasses & Overlays, Davis Dyslexia, Experience-Based Programs (e.g. DORE/DDAT), Lumosity and Tomatis Method for Auditory Retraining?

Answer*:* *submitted 15 May 2017*

Contents

1. Context of this answer

Thank you for this supplementary question ('**Question**').

I note that this answer presents material additional to the information contained in my original Submission 152: https://www.parliament.nsw.gov.au/committees/DBAssets/InquirySubmission/Body/57301/0152%20Ms%20Carol%20Barnes.pdf

In my view, the very existence of the kinds of programs listed in the Question goes to the core of the terms of reference of the present inquiry: https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2416 ('**Inquiry**').

In the interests of completeness, I record first that I personally am not, and never have been, in dispute with the owner or provider of any of the listed programs, and I have no personal adverse experience of any of them (though I do admit to having flirted with some of them many years ago when my children with disability were little. In each case, my enquiries as to what exactly the intervention would entail prompted me to conclude that, "No, I wouldn't want to put my child through that.")

Fortunately, I was able to have my own children's remediable disabilities addressed by highly credentialed medical and allied health professionals **who chose to use what they had been taught at university, rather than what they had bought from an edu-business.**

Disabilities which were not able to be so remediated (eg, handwriting agility, legibility and speed) were adequately addressed by obtaining approval for disability adjustments for in-school assessments and for State exams.

Nevertheless, though I have not personally been adversely affected by any of the programs listed in the Question, my interest in this topic stems from over a decade of supporting and advocating for parents of children with disability who have.

What I report below is necessarily the result of what has been communicated to me by those parents over the years. As such, it is of course hearsay evidence, though I have no reason to believe that the parents who have sought my assistance would have fabricated any of what they have relayed to me.

2. Some features of evidence-based programs

To be acceptable to the scientific community, an intervention designed for students with disability must have empirical research to support it.

Such research must be published in peer-reviewed journals. Approval for publication in such journals attests to the fact that a study reporting on the effectiveness of an intervention has met generally accepted standards of scientific rigour, and that its results can be relied on to conclude that the studied program does indeed ‘work’.

Evidence-based programs are those which:

- Are backed by **independent scientific evidence** published in peer-reviewed journals, reporting on controlled trials which have consistently yielded positive findings and which can be replicated by other researchers not on the team of original investigators.

- Are able to demonstrate that studies purporting to show that the program ‘works’ do not cite improvements which could be simply due to **placebo**. *[Scientific research attests to the fact that some people claim to, or seem to, respond to all sorts of ineffective treatments as long as they fervently believe that the treatment has the power to help or cure them.]*

- Are **conducted by** highly credentialed professionals with relevant qualifications, especially a higher degree (preferably a doctorate) from an academic institution of high repute, who invariably belong to professional associations with ethics guidelines or regulations prohibiting advertisements relying on testimonials.

- Provide **upfront clear information** regarding expected indicators that the program is ‘working’, anticipated length of treatment before any results will be observed, possible side-effects, cost and payment methods.

- Are **recommended by** a paediatrician or an educational and developmental psychologist, after conducting a comprehensive assessment of the child, or recommended by a disabilities professional body or association, but not just by a website, a publisher, another parent or someone whom a parent or teacher has met on a bus.

3. Some features of non-evidence-based programs

I have never been contacted by a parent who feels that their child has been helped over the long term by any of the computer-based, exercise-based or music-based interventions listed in the Question.

I am able to furnish upon request a variety of literature doubting the efficacy of at least the following listed programs:

- Cogmed
- Fast ForWord
- Brain Gym
- Cellfield
- Davis Dyslexia
- Reading Recovery

In addition, and since the **Arrowsmith** Program was raised expressly by a member of the Committee at the 27 March Sydney hearing, and then discussed again at the 3 April Sydney hearing, I attach a compilation summary of a sprinkling of some of the more compelling resources concerning that program. (**Appendix A**)

I am able to put the Committee in touch with academics in Sydney who are in a position to supply and speak to a wider variety of scholarly literature than I have accumulated as a parent advocate.

I have listed below some of the features of non-evidence-based programs which in my experience have led to tragic consequences for some parents and children.

Parents report that non-evidence-based programs and their owners or proponents:

- Engage in slick **marketing** campaigns boasting unsubstantiated claims relating to **neuroscience** and often featuring many pictures of brains and lurid claims about ‘re-wiring’ or ‘re-training’ the child’s brain.
- Rely on **testimonials and anecdotes** rather than controlled clinical trials whose results have been published in peer-reviewed journals. *[For every glowing testimonial from a purportedly ‘satisfied’ customer, there could be 100 dissatisfied customers for whom the program didn’t ‘work’. Testimonials or anecdotes cannot be evaluated for accuracy and cannot be summarily generalised to others. Legitimate health professionals do not solicit testimonials from their patients. Further, there is no way of knowing what incentive has been held out to named authors of testimonials, eg, ”If you write here that my program is terrific, you’ll get XXX free lessons for your child.”]*

- Cite an unpublished **in-house 'study'** which purports to support the program but which included no control or comparison group, and which canvassed no other explanations for participants' reported improvement or success.
- Cite a study or **book** which has been authored by the very person who owns the business promoting the program. *[Self-publication is easy in this age of technology, whereas in the past an author needed to convince at least one book publisher that their work was worth disseminating. And most so-called 'self-help' books are not peer reviewed – anyone can write a book.]*
- Cite a glowing testimonial or ringing endorsement from a person who purports to have expertise in neuroscience or learning disabilities when it later turns out that the spouse or family members of such a person are actually **employees** of the business running the program.
- Refer to the inventor or major proponent of the program as **'Dr. XXX'** despite the fact that that the named person's doctorate turns out to have nothing whatsoever to do with neuroscience or learning disabilities (eg, a person with a doctorate in automotive engineering who purports to be a longstanding 'expert' in learning disabilities).
- Run a parent **support group** devoted exclusively to that program, and **only** that program, on the grounds that it is the undisputable cure for whatever ailment the support group purports to address.
- Author a **blog** or discussion list or social media page where any adverse comments or criticisms are quickly removed.
- Claim to **cure or fix** a named disability or disorder, and allege that no other program will be capable of doing that.
- Claim that **tinted** lenses or coloured overlays will improve **reading** *[when in fact all they will do (for some children who are sensitive to glare reflecting off white paper) is reduce the glare and thereby enable the child to more clearly* ***see*** *the page (just as sunglasses allow adults to see the road more clearly when driving). It is extremely unfortunate in my view that the word 'dyslexia' has been attached to marketing campaigns for tinted lenses. In my experience, coloured lenses and coloured overlays and coloured paper do indeed work extremely well for reducing glare (again, for those students who are bothered by that in the first place).* ***But tinted lenses won't teach you to read any more than wiping the muck off your windscreen will teach you to drive.****]*

- Claim to result in improved academic achievement, even though there is **no academic content** in the program (eg, jumping exercises to improve reading, computer games to improve handwriting, tracing hieroglyphics to improve spelling), and no evidence that the specific skills being learned and rehearsed can ever be generalised to other academic skills. *[The child may become faster and more skilful at computer-based games, but still see no progress in their reading, although reading is what the program purports to be designed to improve.]*
- Claim to be equally effective for a wide variety of **unrelated problems** or ailments with differing causes, for example a chaotic bricolage of ASD, ADHD, dyslexia and fine motor problems affecting handwriting, arithmetic, memory, social skills, independence, and the list goes on….). *[Medical professionals caution that it is highly improbable that the whole gamut of neurodevelopmental problems has one single underlying cause, and it is equally unlikely that such problems can all be expected to respond to the same intervention, even if it is labelled "neuroscience". They note that any intervention which claims to be effective for a wide variety of diverse disorders is prima facie suspect. The more magnificent and comprehensive the assertions, and the more that they claim the program will 'cure everything', the less likely it is that there is any substance to it.]*
- Claim that the program is especially effective for gifted children or Asian children or adopted children or other **categories of children** because everyone knows that those kinds of individuals are especially in need of having their brains 're-wired' to keep them 'healthy'.
- Advertise that the program is '**drug-free'** when the conventional and proven medical treatment for the child's condition would not entail taking any kind of medicine in the first place.
- Claim to be a recent discovery or an **amazing breakthrough**, or to produce immediate or miraculous or startling or astonishing results. *[Legitimate health professionals do not use grandiose descriptors such as these, and do not brag about how they, and they alone, have managed to cure huge numbers of patients.]*
- Claim that **thousands** of children all over the world have already been 'cured' by the program – sometimes with a subtext of, "So what's the matter with YOU that you haven't tried it yet?"

- Claim that the business offering the program has been absolutely inundated with enrolments, and respond to telephone requests for an initial appointment with something such as, “Well it may be a while before I can fit you in as this program is **very popular** and we are very busy, so just let me have a look in the diary… and oh hark, we’ve just had a cancellation for 11 am today so bring him straight over” – but when the parent arrives early, there is no other student just finishing up, and when the session is over, there is no other student waiting to go in.
- Speculate that the remarkable achievements of **historical figures** such as Einstein or Galileo were probably due to the fact that they had secretly discovered or invented the intervention and were furtively using it to enhance the performance of their brains.
- Claim that the program is the result of the life’s work of a particularly **charismatic** historical figure whom no parent has ever heard of and whose identity is undiscoverable on an internet search.
- Point to a well-known and **successful personality** (such as Richard Branson) who has publicly claimed to have had a learning disability, and assert that clearly the program has ‘worked for him and now he’s rich and famous’ (whether or not there is any evidence that the named celebrity ever actually had any contact whatsoever with the program).
- Point to the fact that an **education authority** or school sector or individual school **somewhere** in the world has seen fit to implement the program even in the absence of any empirical evidence that it is effective.
- Feature repetitive exercises which require the **patching** of one **eye**, other than under the supervision of an ophthalmologist. *[Eye specialists advise that eye patching is contraindicated for some children. Patching children under eight years of age (and sometimes even older than eight depending on the child) causes stimulus deprivation to the eye being patched. And if the eye is not being stimulated (i.e. not seeing), the vision in that eye will decrease. Accordingly, the patching is actually causing reduced vision. This is reportedly very serious and requires an orthoptist or ophthalmologist to correct. And the correction all must be begun before eight years, as reduced vision after eight years is very hard to correct, with the result that the child will be left with poor vision in the patched eye.]*

- Suggest to a parent that their child's previously obtained professional medical diagnosis is wrong, and instead the child really has a **non-standard diagnosis** which is not listed in DSM5 but which happens to be the very disorder that the program is designed to 'fix'.
- Appeal to a parent's **emotions** or sense of **guilt** – eg, "How can you allow your dear little child to continue to suffer from [DISORDER] when the answer is right here? How can you justify withholding our new miracle solution from your vulnerable little child? One day your child will look back and blame you for not allowing them to enrol in our program."
- Suggest to parents that, "Other children with the same disorder as your child have in the past attempted or committed **suicide**, and so you'd better act now to prevent this from happening to your child."
- Suggest part way through a lengthy program that the parent must be **noticing an improvement** in something which the parent was never concerned about or cared about in the first place (eg, "I'm sure you're noticing already that he is starting to keep his room tidy.").
- Send a representative to learning disabilities **conferences,** seminars or parent information evenings in the guise of a **parent**, and have the representative attend sessions and quietly observe which parent asks what question and then, at morning tea, chase that parent and pressure them with something such as, "I heard you ask about XXX, and I know exactly how you feel because my little girl used to have XXX, but then one day I found this wonderful program called YYY and after only ZZZ weeks in the program my daughter was completely cured – and oh look here, I just happen to have one of their cards in my purse – you should call on Monday." When this suggestion is not well received, it is invariably followed by, "Oh well, if you don't want the best for your child…"
- Submit an **abstract** to a learning disabilities **conference** purporting to present a break-out session on some general topic such as 'working memory' or 'attention', and then use that session as a thinly veiled advertisement for the very program or therapy owned or practised by the presenter's business.
- Claim that medical and allied health professionals are **trying to supress** the revolutionary program because it works so well. *[Legitimate health professionals traditionally welcome new discoveries and better methods of treatment*

for their patients, and they would have no reason to systematically attack any kind of promising new approach. In the face of exaggerated claims, members of the medical establishment will ask, "If this program really did work, don't you think we'd ALL be using it?"]

- Hint or claim that, for some unstated reason, the program's proponent, inventor or business owner has access to **'secret' knowledge** and information which is not available to the medical community at large, and then respond to any criticism of the program by alleging that the business owner is the victim of the scientific community's:
    - conspiracy to discourage the unveiling and dissemination of the 'secret' information; or
    - selfish desire to force the information to be disclosed so that competitors can make money out of it as well.
- Admit that there is **no independent research** evaluating the effectiveness of the program yet, "But there probably will be soon", and then excuse the delay on the grounds that it is hard to find independent academics willing to evaluate the program because they are all part of the scientific community's conspiracy against the program's inventor.
- Claim that the program must 'work' because there is **no evidence** that it **doesn't.**
- Claim that, just because there is no evidence that the program is effective, that doesn't mean it isn't, on the grounds that there was once a time long ago when **no one had yet produced hard evidence** that antibiotics or vaccines are effective, and yet we now know that they are.
- **Respond** to **assertions** that there is **no evidence base** for the program with something such as, "It really annoys me when you say that there is no science behind our program. Different things work for different children, and nothing works for everyone. You just have to try. Our program clearly works for some. By telling people that there is no science behind our program, you are depriving untold numbers of children of the right to at least try it and see if they are one of the lucky ones for whom it does in fact work."
- Feature **licensees or franchisees** who claim, "Even I don't really understand how the program works. I just know that it does. I just do whatever the manual says. The business owner won't share too much research information

with licensees and franchisees because how would the owner know that we won't take it and start up our own business in competition? And I'm fine with that. Anyway, I don't want to have to explain the research behind how it works. I just know it does."

- Claim that past participants in the program have scored higher **ATARs** than they otherwise would have. *[Exactly how could anyone know that for sure?]*
- Refuse to share the names of **past participants** in the program on the grounds of 'privacy' or because, now that those participants' children have been 'cured', they are understandably reluctant to admit that their child had ever suffered from the disability in light of the 'stigma' allegedly attached to it.
- Offer a '**discounted' fee** on the grounds that the child in question is 'special' or particularly needy, but request that the amount not be divulged to others who are being required to pay the 'full price'.
- Refuse to offer or to honour a **money-back guarantee** on the grounds that, "Well there's no money-back guarantee on Panadol either."
- Respond to a parent's questions such as, "If you're really a psychologist, how come you can advertise using testimonials – I thought your **professional association** prohibited that?" with rejoinders such as, "Oh that's just for my counselling practice as a psychologist, but not for this extra program which I have bought and am offering in addition to my counselling practice."
- Have a history of **legal action** being commenced by disgruntled former participants, **or** complaints being filed with the **ACCC** (or similar). *[Anecdotally, there were at least two complaints filed last year with the ACCC against one program on the grounds of false and/or misleading representations. Even without establishing the legislative admissibility of those complaints, the standing (or otherwise) of the complainants, or whether the complaints have been formally accepted for investigation by the ACCC, it would be wise for schools considering any program to look into this, so that it cannot be argued in later years that back in 2016 a school knowingly or negligently introduced a program run by a business which was then under investigation.]*

4. Why are parents attracted to non-evidence-based programs in the first place?

An early comprehensive assessment by a developmental paediatrician or by an educational and developmental psychologist is recommended for all children who are presenting with any kind of erratic, inconsistent or unexplained underperformance – or simply any other concern which prompts a parent to think, "I wonder what's really going on here."

The reports of such professionals will usually contain not only their diagnoses and a summary of the results of their investigations, but also ideally a list of recommendations as to how the child can be assisted at school. Sometimes the diagnosing professional will also on-refer to other highly credentialed and specialised allied health professionals, such as occupational therapists or speech/language pathologists for further testing, treatment or remediation.

Sometimes schools will happily implement the adjustments recommended in professionals' reports for children with disability, and parents are satisfied that those interventions have indeed been introduced and that they are all the child needs to succeed academically.

Other schools greet a professional's assessment with a shiny undertaking to do everything professionally recommended to assist the child at school – and then proceed to do absolutely nothing.

In other cases, schools dispute or belittle professionals' diagnoses and recommendations, and flatly refuse to implement any kind of professionally recommended and documented modifications or adjustments for the child, on the basis of excuses such as those canvassed in Part 4.2 of my original Submission No. 152: https://www.parliament.nsw.gov.au/committees/DBAssets/InquirySubmission/Body/57301/0152%20Ms%20Carol%20Barnes.pdf .

Some schools argue that the recommended disability adjustments are unnecessary because the school already has its own proven remediation program which will take care of the problem, "… but wait, there's more: a wonderful new initiative has just been announced and it's called *Every Student, Every School ('**ESES**'),* and it is guaranteed to respond to all your concerns, and I'm sure that it will - as soon as it is rolled out - so just sit tight and be patient and let us get on with it."

Parents report that they then wait for this, that and the other in-school remediation program and policy initiative to produce the promised stellar results, but the months go by and the years go by, and still their child can't read.

Then, to add insult to injury, they notice a newspaper article revealing that a departmental investigation has just reported that the very reading remediation program being used with their child has now been evaluated and shown to be ineffective for most or for many of the children enrolled in it. Parents conclude that if an education authority is willing to adopt a program with no science behind it, then surely a parent is justified in doing that too.

When parents return to the school to enquire about the progress of the supposedly wonderful initiative called *ESES* , they are invariably told something along the lines of:

> *Well ESES was supposed to ensure that all students with disability would have their needs met at school, and it sounded wonderful at first but it never amounted to anything for us at this school.*
>
> *Sure, we got a new Learning and Support Teacher and she was really nice but she didn't know anything, and she was the first to admit that her training had been inadequate. And anyway, we have 500 students at this school and, if even 10% of them have a disability, that's 50 students, and she is only one person and can deal only with the most severe cases. She doesn't have time for a child whose only problem is that they can't read. And we're so short-staffed we had to give her other jobs as well, like organising excursions and assemblies and the tuck shop.*
>
> *And under ESES all our regular classroom teachers were supposed to get training in how to teach students with disability but it turned out to be online training. Some teachers here said the online courses were demeaning or boring or not practical, and others refused to do the training at all unless we made time for it during the regular school day – but we're too short-staffed for that so they haven't done the training and they refuse to do it at home on their own time unless we pay them more – which of course we can't.*
>
> *In fairness, some teachers did try to use the new PLASST functional tool which was introduced under ESES, but they said it was too complicated and time-consuming, and soon gave it away - and it's not compulsory anyway. Other teachers refused to even consider using it unless they got time off during the regular school day to do that, and of course we're too short-staffed for that.*
>
> *So sorry but, after a while, we realised that ESES was just a list of aspirational but unobtainable objectives. It proved all too hard and so we're not going to do it after all – and under the other*

> *new policy called Local Schools, Local Decisions, we make our own choices here from now on, and we don't have to do ESES if we don't want to.*

Faced with a school's unrelenting unwillingness to even discuss the possibility of adjustments, or a school's manifest inability to remedy the situation in-house, it is not surprising that some parents lose all confidence in the schooling which their child is being offered for free, and conclude that they have no option but to look for solutions outside the formal education system.

Some enrol their children for private tutoring or coaching or remedial programs or therapies which are allegedly designed to assist the child in coping with, managing or 'curing' their professionally diagnosed disability. And sometimes parents do this regardless of whether they can truly afford such interventions, and regardless of whether the program chosen is evidence-based.

Especially tragic in this context are the outcomes awaiting parents who are prompted to haemorrhage cash in the direction of all manner of private expensive 'neuro-babble' programs or courses or remedies or 'cures' offered by edu-businesses which are far more interested in a parent's wallet than a child's long-term improvement at school.

Parents' extreme fragility and vulnerability result in the often heard, "Well sure perhaps there's no science behind it, but my hairdresser's nephew tried it and it worked for him. The fact that it worked for someone is enough for us. We're desperate, and we won't rest until we have tried absolutely everything."

Wishing to assure themselves that they have indeed 'tried absolutely everything' and have left no stone unturned, some parents over the last decade have wasted a good deal of time, money, energy and emotion on a variety of expensive bogus programs which initially sound wonderful but which ultimately don't 'work'.

Even commercial programs which claim to be 'evidence-based', 'research-based' or 'research-informed' often turn out to be underpinned by no strong independent scientific evidence, and indeed have never been shown to be effective in accordance with the general consensus standards of the scientific community.

Nevertheless, in the midst of their desperation to help their child, some parents have reasoned that, "Surely it couldn't hurt to try…", and have then impulsively enrolled their child for a plethora of usually expensive but evidence-free interventions, especially computer-based, exercise-based or music-based programs.

Parents are understandably dazzled by all the complex neuroscientific terminology and glowing testimonials, particularly if the program's founder or inventor is presented as being an especially charismatic character with a large, almost cult-like following. Parents long for the dramatic results and remarkable solutions which other parents and children claim to have already found.

Said one mother:

> *As soon as I heard about this new program, I couldn't get the money out of my purse fast enough. I dove straight in, without even undertaking as much background research as I usually would before buying a new fridge. I am so embarrassed now that I was taken in by this. Not only did the program not help my child – it actually damaged him.*

Sadly most parents, no matter how well-educated, clever or worldly, do not have the training or expertise required to accurately evaluate the scientific findings relating to the effectiveness of the treatments which they are proposing to 'just try'. They can't be blamed for impetuously deciding to hitch their wagon to whatever 'neuro-babble' program sounds the most promising this week.

Admittedly some parents do attempt to conduct their own research into a program before enrolling. However, when they do look under the hood of the program and come up with scholarly articles suggesting that it has no evidence base, and then present the articles to a program operator, the response is invariably something attacking the qualifications, credibility or integrity of those articles' individual authors, followed immediately by, "And anyway, other researchers at other universities overseas have found that our program DOES work – take my word for it!"

Other parents report having been convinced that a program must 'work' as soon as they saw the little ™ symbol after the program's name. Surely that symbol implies that a trustworthy official in authority somewhere in the world must have investigated the program and found it effective before issuing a trademark approval? ™ without more is seen as an endorsement.

Further, the very fact that some Australian schools - and even a school sector - have seen fit to introduce an unproven intervention such as the Arrowsmith Program within their regular in-school education programs just subtly reassures parents that maybe they needn't bother doing their own fiddly investigative background work at all. Instead they feel confident relying on schools' implicit representation that the intervention really does 'work', because, "Otherwise, why would seemingly reputable grown-ups with education degrees 'believe in' it?"

5. What are the consequences of participating in non-evidence-based programs?

Many commercial non-evidence-based programs can be quite expensive – both those programs which are to be undertaken out of school hours either at home or at a therapist's office, and those which are embedded within a school's educational program and which are undertaken during regular school hours (usually with mammoth amounts of 'homework' each evening).

Fortunately, before enrolling for a given program, some more discerning (and perhaps cynical…) parents do take the time to speak to other parents whose children have undertaken that same program in the past. Such conversations have served to persuade more than one parent to leave their hard-earned money in their wallet.

In my experience, parents with a money tree in the backyard are especially vulnerable. They protest, "But there's still this one new miracle program that we haven't tried yet, and yes it's expensive but we can easily afford it, and I won't sleep at night till I know for sure that I've tried everything to help my child. To leave a program untried is to give up hope and accept that my child has a disability, and I can't and won't do that."

On the other hand, parents who are less financially advantaged have been known to take all the money saved for this year's summer holiday and donate it instead to some evidence-free scam which then ultimately produces no long-term improvements whatsoever.

Worse than wasted money, however, is the opportunity cost - all the wasted time during which an academically discouraged child has been forced to participate in a program that has ultimately produced no improvements, while the child could have been devoting all that time to an evidence-based intervention or remediation program instead.

Worst of all is the damage to the child's self-esteem and academic self-concept from a serial realisation that, "Yet again they've tried to 'fix' me with another 'program' and yet again I've failed. How dumb must I be…."

Parents regularly report also that some of the programs have damaged their relationship with the child, especially anything which requires that work be undertaken at home. Some of the computer-based programs which must be done at home are excruciatingly boring and repetitive yet difficult, and few children can persist with them in the absence of constant encouragement, supervision or even threats from a parent – sometimes constant reminders about how much the program costs and how the whole family will suffer if the child cannot succeed at it.

Parents complain of night after exhausting night of frustration and tears and quarrelling. Both parents and children long for the pre-program days when they used to get along with each other and have fun together after dinner, and when the whole house was not constantly in turmoil because XXX number of levels on a computer had not been successfully worked through.

In my experience, the deterioration in the precious relationship with their child is what most parents regret a good deal more than the lack of academic improvement or the money they have been duped into losing.

6. What are the barriers and concerns discouraging public criticism of non-evidence-based programs?

6.1 Parents

6.1.1 Threats stemming from confidentiality agreements:

On enrolment some programs require parents (and sometimes even children) to sign a confidentiality agreement with respect to the program's materials or approaches or results.

Sometimes parents report that the agreement contains a clause agreeing to never criticise the program in writing or orally in public, although other parents enrolling in a different branch or practice or school which is offering that same program dispute the existence of such a clause in whatever they are required to sign.

Programs' mandatory agreements with parents are sometimes justified on the grounds of protection of intellectual property, but at least in some cases, their wording is allegedly so wide as to effectively prevent signatories from ever speaking out publicly against the program or about the parent's or child's experiences with it.

Some parents are reportedly allowed to take the agreement home and 'think it over' before signing (thus providing an opportunity to make and retain a copy).

Others, however, are presented with the agreement at a school or therapist's office and instructed to sign there and then, and not allowed to keep a copy.

Parents in the latter category afterwards have only the vaguest of memories of the scope of the confidentiality clause and thus, when they decide to part company with the program, they feel that it's safer to just say nothing to anyone (including their child) as to why the program proved ineffective, in case they might 'get into trouble'.

Parents who ignore the agreement and speak out anyway report that they invariably receive threatening letters from lawyers acting for the program's owner or provider, reminding them of the confidentiality agreement, alleging that by speaking out they are in breach of it, and warning that if the parent continues to speak publicly, legal action will be commenced.

These confidentiality agreements represent one of the greatest barriers to open community discussion about a given program's effectiveness.

The very fact that a program's owner or provider feels that such an agreement is necessary in the first place speaks volumes. Does that not suggest that those behind the program already know that the program may not, or more likely will not, actually 'work'?

People who sign up for evidence-based programs delivered by highly credentialed professionals are not required to sign a confidentiality agreement.

And professionals who practise evidence-based programs, confident that their intervention will be effective, do not need to require their patients or clients to enter into confidentiality agreements or give undertakings not to publicly criticise the program.

6.1.2 Other threats:

Sometimes a program's owner or provider may threaten that, if the parent dares to complain in public or in the media, they will expose the parent as having been 'foolish' or naïve to enrol in the program in the first place without investigating it more closely (especially in the case of parents with scientific or medical training).

Some practitioners have threatened to publicly expose the child by name as having been 'just too dumb' to have ever had a hope of benefiting from the program in the first place – and then of course all this will be recorded on the internet for all eternity and will be searchable in later years when the child becomes an adult and is applying for jobs (a threat which many parents find quite compelling).

For a reason which has been the subject of much speculation, some programs which are devoid of scientific credentials nevertheless find their way into regular state and private schools and even into whole school sectors.

Some such interventions are offered as a short pull-out program (eg, one or a few periods a day) while the child otherwise remains in the regular classroom, especially for core subjects such as English and Math.

Other programs are undertaken as a full-time replacement for regular lessons in self-contained classes. Participants are taught the program (and only the program, without any academic subjects) by a teacher who has been separately trained in the program but is still employed by the school. Parents pay for the separate program or, in the case of private schools, they pay more.

With respect to those in-house programs which are offered by schools full time during the regular school day, parents have been told:

> *As you must have known when you signed up, this is designed to be a three- or four-year program, and during the time your child has been enrolled in it, they have not been studying any academic subjects such as English or Math. All they have done all day every day is the program. Accordingly, they are quite far behind their age peers in regular academic subjects by now.*
>
> *If you pull out early, you will be faced with paying for expensive intensive private tutoring to bring your child up to grade level in English or Math, as this school doesn't have the remediation resources to do that, nor should we have to.*
>
> *But if you last the distance in the program, your child's brain will have been so effectively re-wired that, even though they will be three to four years behind in their schoolwork by the end, when they return to the regular classroom they will be able to use their re-wired brain to easily catch up all by themselves without you having to pay for extra tutoring.*

Similarly in the context of such full-time in-school programs in private schools, parents have been warned*:*

> *You can't withdraw from the program because this school needs ten students to continue to run it, and if you withdraw your child, we won't have enough – and if the program has to close, then other parents in the program may remove their own child from our school altogether and find another school which runs the program, and then we'll lose all those parents' fees for our regular education program.*

Further, some parents have reported that in the in-school context, a certain camaraderie develops among the parents of the ten or so children in the program, distinct from that among parents of children in the regular classroom. They sometimes describe this as feeling as if that are members of a special 'cult' – those enlightened individuals who 'believe in' the program. In this context, parents have been warned by their schools that, if they withdraw their child from the program, and especially if they are heard to begin criticising it in public or in the media, other parents whose children are still in the program "won't like you anymore."

Again, this threat is seen as quite compelling by some parents, who for years have had to worry about whether their quirky child will be invited to birthday parties and such. Anything resulting in the further ostracising of the parent or child is viewed as most unwelcome.

Perceived reprisals at school are also a concern, especially when a parent is warned:

> *By speaking out against the program in public you would be ruining it for all the other children who are still enrolled in it and whose parents believe they are deriving benefit from it. This school cannot guarantee your child's continuing happiness – or even safety - if you speak out against the program but still leave your child here in the regular educational program.*

On the other hand, a parent wising to withdraw may altruistically reason, "Well so it didn't work for my child but maybe that's just him. Perhaps it really does work for other children. Would I really want to ruin it for other children and for other parents, especially since I so strongly identify with the desperation which drove those parents to the program in the first place? Best to leave well enough alone and just keep quiet."

Finally, from non-school private program providers, parents have even received threats as blatant as the following:

> *This program has been operating for XXX years and we're not going to let you or anyone discredit it and ruin it for all the thousands of children who are still to benefit from it – and anyway, it's the way we make our living, and we won't take kindly to any criticisms of it which may detract from that income.*

6.1.3 Fear of appearing naïve or 'silly':

Even parents who are prepared to face and deal with threats and rejoinders such as those mentioned above are sometimes reluctant to speak out because they are aware of how others' complaints have been publicly dealt with in the past.

Some parents worry that they would or could not respond adequately in the face of the excuses and retorts proffered by the program's owner or provider, and they don’t want to appear ‘silly’ in public, eg, edu-businesses’ excuses such as:

- “You have known all along that this program **works slowly** and is not expected to show immediate results, but it is important for your child to continue, even in the face of no visible improvement, because all will be revealed at the end of the lengthy program, if only your child will keep persisting” (*and if only you will keep paying…*);
- “Well so far you’re the **ONLY PERSON** for whom our program hasn’t worked. You’re the only person who has ever complained. You or your child must have done something wrong. Maybe:
    - your child didn’t try hard enough or was not sufficiently engaged and committed to the program; or
    - you didn’t supervise the mandatory homework carefully or strictly enough; or
    - you helped your child too much and did not allow them to ‘struggle’ sufficiently with the exercises.”

  [Paediatricians report that their waiting rooms are filled every day with the ‘ONLY’ person for whom the program has not worked.];
- “You obviously just **don’t understand** the complex science behind the program – but then, oh yeah, that’s right, you don’t have a university degree, do you?”;
- “When you enrolled your child, you **didn’t disclose** that your child has a low IQ, or a high IQ, and of course everyone knows that our program was never going to work for such a child because low-IQ children find it too challenging, and high-IQ children find it too boring” (although the parent has no record of ever having been asked about IQ at the time of enrolment);
- Our program didn’t work for your child because she has “an **unusual combination of weaknesses**”. Had we known that at the beginning, we wouldn’t have accepted her. We doubt that ANY program will be able to help her. Whatever else you try, it probably won’t work either.”;
- “Well if you want to leave our program and go back to forcing your child to take **dangerous psychotropic drugs**, then that’s your business – but don’t blame me if your child ends up as a drug addict.”;
- “Your child told me in one of our lessons that you have **never believed** in our program and you think it’s a waste

of time, and so that's why your child has failed to show any improvement.";
- "**How dare** you complain – and here I've given you a discounted fee and you don't appreciate it."

Typical of many parents' fears is this comment from one mother:

> *Before I enrolled my child in this private commercial program, my school and my family members warned me against it, and said that the program had no evidence behind it and was a waste of money. But I quietly put him into the program anyway because I could afford it and because I could see no other solution.*
>
> *Now that I'm wanting to withdraw from the program and I realise that the school and my relatives were right all along, I am embarrassed to have made such a dumb mistake. If I now speak out against the program, how could I ever again show my face up at the school, or hold my head up in front of all the people in my family who warned me in the beginning?*
>
> *So I just continue to lie and say that the program 'worked' even though I know it didn't – and I make up excuses about why we are quitting (such as the assertion that I can no longer afford to pay for it).*

Further, some parents offer admissions such as the following:

> *Shortly after my child finished the Program, I actually did believe that it had 'worked' and that I could see improvements in his schoolwork. Back then I was not a critic but a 'satisfied' customer. I even recommended the Program to friends and acquaintances at his school.*
>
> *As time went by however, I realised that my former 'satisfaction' had been unfounded, and that there really had been no improvements at all.*
>
> *On reflection, my initial enthusiasm was probably fuelled by the fact that I had paid so much money for the Program, I simply could not admit, even to myself, that I had been silly enough to have ever become involved in it. I* ***wanted*** *to believe that it had 'worked'. I* ***needed*** *to believe that I had not really wasted so much money. No one likes to admit they have been swindled.*
>
> *I recall also that I was heavily influenced by the kind and well-intentioned practitioner who had sold me the program and had*

> *guided my child through it. She had always been very nice to me and my child. It was evident that she genuinely believed the program to be effective, and I honestly don't think she realised that she'd been hoodwinked into a scam. She so wanted to help children with disability, and she was delighted to have a found a job which purported to allow her to do that without any university training. She very clearly wanted me to tell her that the program had 'worked' for my child and, for some unknown reason, I then felt compelled to reassure her that yes indeed it had 'worked' and that I was happy with the results – even though I have now come to understand and accept that there are no 'results' and never had been (other than my significantly decreased back balance).*

Finally, taking action against a program is far from easy. Filing a complaint with the ACCC is time-consuming and can be fiddly and preoccupying. Most parents of children with disability are already upset enough that the latest miracle program hasn't worked. They don't have time or emotional energy to go after its backers. Parents of children with disability will know only too well that there is enough to think and worry about with respect to getting their child's needs met and their disorders remediated. There is simply no time or inclination to add another task to the list.

6.2 Teachers

Sometimes in schools which offer a non-evidence-based program, either as a pull-out option or as an all-day replacement, teachers who work in the mainstream classroom form the view after a while that they are unable to see how the program is working for anyone in their regular classes – either those who spend a half day in the program or those who return to the regular classroom after three or four years in the full-time program.

When they raise their concerns with school officials, they are told that the school is now reliant on the many thousands of dollars in fees from the parents whose children are enrolled in the program, and it would therefore be extremely unwise for a teacher to be seen to be criticising it – or even openly doubting it.

If such teachers persist, they are told that all they are allowed to say when asked about the program is something such as, "My official position on the XXX Program is that I have no view about it either way".

Just as parents must sign confidentiality agreements with some programs (see **Part 6.1.1** above), so must schools – especially in the case of full-time replacement programs where the child is removed from the regular classroom and is taught only the program in a separate setting within the school.

Schools are reluctant to reveal the contents of such agreements but it is reasonable to assume that they would also contain a clause forbidding the criticising of the program in public.

This is something which it would be wise for new schools to remember when considering whether to introduce such a program, and when consulting schools currently running it to ask how it's going.

What could such a school possibly reply other than, "Swimmingly! We love it!"?

All the glowing praise and testimonials emanating from such schools should be viewed in light of their obligations under such confidentiality clauses, and possibly well-grounded fears with respect to their breach.

Along different lines, some otherwise very well-intentioned teachers have reported that, while they are very keen to help a child with a reading disorder or a disorder of written expression, they have absolutely no idea how to go about doing that, or even how to measure and describe the problem to the school's learning support teacher.

When asked for advice by a desperate parent, some teachers have admitted responding simply, "Why don't you try the XXX Program – I've heard that works" – when in fact their knowledge of the program and its methods and goals is at best incipient. They feel that teachers cannot be seen to be devoid of ideas, and at least recommending an out-of-school program keeps the parent out of the teacher's Inbox (for a while…).

6.3 Allied health professionals

Occasionally we hear about private professionals such as speech/language pathologists, occupational therapists, education consultants and even two educational psychologists and a paediatrician uncritically purchasing the licence for one of the non-evidence-based programs and offering it within the scope of their professional practice.

Especially worrying in my view are those professionals who make completion of the program a condition precedent to providing an initial diagnosis of the child's presenting issue – or rather, those who do that only for clients who appear to be able to pay for it, while continuing to diagnose children from less financially advantaged families as normal.

Parents hear for example, “Yes I agree that Timmy probably does have ADHD but I won’t diagnose it until you complete the XXX-month YYY Program – which I just happen to offer right here in my rooms. And then if he still doesn’t improve, I will make the ADHD diagnosis and you will be able to obtain a medicine to address it. But for now, let’s just go next door and meet Poppy who supervises the children doing the YYY Program, and Timmy can get started right away today.”

In some cases parents suspect that the professional, although perhaps somewhat gullible and impulsive, genuinely believes, when they purchase the licence, that the program just may do some good for someone some day and thus it’s worth offering it.

In other cases, however, parents believe it’s clear from the beginning that the professional is offering the expensive program (or a long menu of such programs) with one eye on their bank balance.

Obviously, if these programs did not offer some kind of financial reward to those purchasing their licences, why would anyone ever do that?

It is not clear whether professionals purchasing licences must also sign the agreement to never criticise the program in public, as discussed in **Parts 6.1.1** and **6.2** above.

When it turns out, as it inevitably does, that the program is not effective and when parents accordingly begin to ask why they’ve been paying for it, the professional is faced with a dilemma.

On the one hand, they may fear legal action from the program’s owner or licensor if they discontinue or wind back the program and speak out against it in public.

On the other hand, however, they may fear legal action from disgruntled parents who have, at the professional’s instigation, wasted a lot of money on the ineffective program. Parents turn up clutching a file of articles printed off the internet questioning the program’s effectiveness or baldly asserting that it is a hoax and that they have been swindled. What if parents sue to recover the costs of the program, on the grounds of fraudulent or negligent misrepresentation?

As professionals, former proponents of a ‘neuro-babble’ program may be ashamed and embarrassed that they have bought a licence to provide, and have completed all the training for, the program without:

- ever asking to see the science behind it; or

- being able to understand all the complex material which is proffered in the way of supporting ‘research’.

Such professionals are thus deeply reluctant to be heard warning others about something which they themselves used to praise and advertise as the next best thing.

One allied health professional was told by a very senior member of their profession, “Oh yeah that program sounded good at first, but I went over to [country where it was invented] to look into it and, as soon as I discovered that all the evaluations had been done by the inventor and no one else, I just went back to my hotel room and watched movies. I really can’t believe you let yourself get taken in by it!”

Some professionals may understandably feel they must continue to purport to offer a suspect intervention despite compelling evidence regarding its uselessness – simply because they have been running it for so many years that they are now afraid (or simply too proud) to be seen to be suddenly retreating from their longstanding assertions.

No one wants to have to admit that something in which they have invested several years of their career has turned out to be a pile of nonsense.

Further, on the strength of all the extra revenue which they have been enjoying since offering the program, a professional may have purchased or rented new premises, or otherwise taken on additional financial commitments which now depend on that income being maintained. It is now hard to even gradually discontinue the bogus program, let alone speak out against it in the media.

Finally, one professional who has actually admitted that there is no evidence behind their program nevertheless justified their decision to continue to offer it on the grounds that it represents a ‘training-wheels approach’ to prompting some parents to accept that their child requires some sort of intervention. Only once the sham intervention has failed, it was argued, would the parent agree to enrol for an evidence-based one. And meanwhile, that professional gets to keep that client (and their fees), and does not have to worry that the parent will opt for something even more damaging or dangerous offered by someone with even less credibility.

6.4 Academics and researchers

Unlike parents, schools or allied health professionals, academics and researchers have probably never signed any kind of confidentiality agreement with respect to a non-evidence-based program, but that does not prevent them from also being the subject of threats of legal action if they speak out in the media claiming that there is no empirical evidence underpinning it.

Academics and researchers who have openly called such programs into question in the print media or in television or radio interviews or documentaries have found themselves receiving lawyers' letters in the same way as parents.

For example, portions of a television documentary about the Arrowsmith Program some years ago reportedly had to be spliced out following the first broadcast because the Arrowsmith business lawyers objected to the inclusion of criticisms which were being levelled against the program by a very highly-credentialed academic, and the Arrowsmith business threatened to commence legal action against both the academic and the broadcaster for defamation if the program were to be further aired uncut.

Is this the hallmark of a transparent learning intervention confident of its effectiveness and with nothing to hide?

Few academics have the financial means or willingness to defend such actions, especially if they end up proceeding to lengthy hearings, and especially in light of the possibility of costs eventually being awarded against the academic.

Another reason that some academics choose to not speak out about bogus programs is fear of accusations of self-interest: they are invariably accused of having their own (perhaps secret) competing program which purports to address the same disorder as the bogus one, or of having a financial interest in someone else's which does that. They are told that they must be criticising the bogus program only because they wish to plug their own competing commercial venture – and this, whether the criticising academic in fact does have their own program or not.

Further, researchers who submit scholarly articles for publication in peer-reviewed journals sometimes find that, even if their paper is accepted, editors are quite cautious if it contains assertions that there is no empirical evidence supporting named interventions and programs.

Some authors have reportedly been drawn into lengthy discussions with a journal's legal representatives, and ultimately been required to make several changes to render the article softer', more palatable and less of a target for possible litigation.

Academics’ career progression depends, at least in part, on the number and quality of their peer-reviewed publications, so why would an academic refuse to acquiesce in this situation and risk having their article rejected for publication altogether?

Finally, and especially with respect to some literacy methods, approaches and philosophies, some education academics may have been teaching and promoting a recently-discredited method or program for so long that they are now understandably loathe to simply leave that notion behind.

As far as they know, the soundness of that method has never been questioned (out loud…) by anyone in their institution who seems to know what they’re about in the literacy realm, and therefore the shards of half-truths have never been allowed to sparkle through.

Over many years, some academics may have made countless conference presentations and written numerous articles and book chapters about the recently-discredited method and the consequential evils of any views opposing it. And of course, many such publications end up both being listed as prescribed textbooks for university education courses and being on sale in the lobby at literacy conferences.

If word were to get out now that a given program does not really ‘work’ and that no one ‘believes in it’ anymore, then what would happen to such publications (and the royalties and fame which supposedly emanate from them).

An about-face now could accordingly be problematical, and in some cases might undermine such individuals’ very reason for existence. They might suffer a serious blow to their general credibility and to their views on other education-related matters if it came to be widely recognised that the XXX Program, one of the pillars of their writings, had been discredited or exposed as a hoax – or worse, that other evidence-based programs which they had been long denigrating have now been shown conclusively to be more valid and reliable after all.

7. Relevance to the present Inquiry

The field of learning disorders has a uniquely disturbing history of ‘neuro-babble’ notions being appealed to for the purpose of creating and advertising ineffective interventions, yet there exists no central agency responsible for regulating or accrediting therapies or interventions for children with disability (and in this connection, see discussion on page 66 of the uncorrected proof of the present Inquiry’s 27 March Sydney public hearing transcript).

In other words, there is no ‘Therapeutic Goods Administration’ when it comes to ‘therapies’ which are not ‘products’ but rather programs.

‘Neuro-babble’ program practitioners are not governed by the ethical guidelines or regulations prescribed by a professional or other licensing association or body. They are not required to meet the strict yearly continuing professional development requirements set by such associations as a condition precedent to being able to continue in practice. They do not have to worry about the consequences of a negative endorsement or a complaint finding on a regulatory website such as the Australian Health Practitioner Registration Agency (APHRA) http://www.ahpra.gov.au/registration.aspx . Unlike other medical and allied health professionals, they have no fear of being de-registered or ‘struck off’ - because there exists nothing to be struck off from.

On the contrary, ‘neuro-babble’ programs are a law unto themselves, professionally accountable to no one.

Thus, the many children for whom such commercial programs end up in the crevices of failure represent the impetus for all who care deeply about students with disability to draw critical attention to:

- the ever-increasing number of such initiatives, and
- the ever increasingly aggressive and vociferous way in which they are being marketed and promoted.

It is our job to ask for the evidence behind ‘neuro-babble’ programs and to openly question the motives of those schools or school sectors who rashly embrace, implement and fund such programs in the absence of that evidence.

Non-evidence-based programs which are offered by edu-businesses emerge and flourish wherever and whenever the needs of children with disability are not being appropriately met at school and:

- whenever schools are unable to, or refuse to, provide their own in-house evidence-based effective instruction or remediation programs; or
- whenever schools refuse to comply with legislation and policy to implement professionally recommended and documented in-school disability adjustments.

Parents cannot be blamed for eventually losing all confidence in regular schools’ ability to meet the needs of their children with disability.

Said one disgruntled parent:

> *Schools are the greatest accomplices in allowing all these dodgy programs to continue to rip us off. If schools were doing their job and not just recommending that any child with learning problems should simply go away and seek outside help, then all the scams, shams and hoaxes couldn't make money and wouldn't exist.*

Of course the vast majority of parents want the very best for their children, with disability or without.

Accordingly, parents who continue to see no improvement at school year after year cannot be censured for looking elsewhere, and for unwittingly but optimistically becoming involved in some unexamined out-of-school hoax intervention in the first place.

In my view, rather than considering a proposal to create a new 'Therapeutic Goods Administration'-type agency or entity to regulate and accredit edu-businesses and the questionable programs which they espouse, the Committee would be better advised to concentrate on recommending measures which will improve what is being offered every day free of charge at a child's regular school during school hours.

Consequently, evidence-free expensive commercial programs, rich in testimonials and anecdotes and pictures of brains, would then not appear so attractive to parents, and market forces alone would probably oversee their gradual demise.

No one wants to pay a dodgy business to do what a school is already doing very well for free.

APPENDIX

Some further information about the Arrowsmith Program:

- Article by A/Prof Tim Hannan, Head of the School of Psychology at Charles Sturt University, and Past President of the Australian Psychological Society, published November 2015 in *Australian Science* (Vol. 36, 9, p. 41):

  > ***"Some 35 years since the introduction of the Arrowsmith Program and 18 years after the declaration of intent to research its effectiveness, not one single study has appeared in a peer-reviewed journal. This observation suggests another important question: why has the Catholic Education Office in Sydney, in company with a dozen other schools in Australia and New Zealand, decided to embrace a program with no reliable evidence of its efficacy?"***

- Article from the Sydney Morning Herald's *Good Weekend* magazine, 22 April 2017: http://www.smh.com.au/good-weekend/can-barbara-arrowsmithyoungs-cognitive-exercises-change-your-brain-20170419-gvnsn5.html :

  > ***"Indeed, what large-scale, randomised, control group studies do show is that brain training programs like Arrowsmith achieve very little. "Any improvement made is task-specific, and temporary," says Dr Renee Testa, a clinical neuropsychologist who specialises in child and adolescent neurodevelopment disorders, lectures at Monash University, and works in private practice. "I wish we could say there was a magic bullet solution! But that's what the science tells us."***

- 2017 book by Caroline Bowen (UK) and Pamela Snow (Aus) *Making Sense of Interventions for Children with Developmental Disorders.* Guildford: J+R Press Ltd. (Ch 9):

  > ***"Instead of peer-reviewed literature, the Arrowsmith Program is heavily reliant on small-scale studies (eg,***

> ***sample sizes of 5, 7, 15), in-house reports, and testimonials from satisfied clients. Testimonials are always red flags in the intervention space, because of their inherent cherry-picking bias and the absence of stories from DIS-satisfied clients. If a school-based intervention occurs over a 3-4 year period, in the context of low staff:student ratios, we should expect significant gains. What we do not know (without properly conducted, robust research trials) is how much those alleged gains can be attributed to "active ingredients" in a specific programme versus the intensity of the attention, practice and no-doubt enhanced motivation that students feel in such intervention settings. We also do not know how many children did not benefit from the programme, or may have experienced negative consequences as a result of their participation in it."***

- Technical report from the University of Auckland 2015: https://www.ldaustralia.org/client/documents/NZ%20brain%20changing%20interventions%20report%20e.g.%20Arrowsmith.pdf - see pp 4-8:

> ***"Evidence against efficacy: The Arrowsmith programme claims to be founded on neuroscience research. This is true in the sense that Arrowsmith-Young continually refers back to localisation of (dys)function as described by Luria when describing the development of her cognitive exercises. However, it is not the case that (present) neuroscience research actually supports the use of Arrowsmith's particular exercises to remediate learning disabilities."***

- Piece by Macquarie University academics, published in *The Conversation*, 5 October 2012: https://theconversation.com/brain-training-or-learning-as-we-like-to-call-it-9951

> ***"A concept underlying many brain-training programs, including Arrowsmith's, is that of "neuroplasticity". This idea stems from research in neuroscience that shows that parts of the brain designed for one function can adapt to perform new ones. Brains adapt depending on how they are stimulated. But if neuroplasticity tells us that the brain can adapt, it does not tell us how the brain***

> ***should be stimulated (or trained). Thus, neuroplasticity does not tell us about how to treat learning difficulties."***

- 2015 piece by a professor of developmental neuropsychology at Oxford: http://deevybee.blogspot.co.uk/2015/08/opportunity-cost-new-red-flag-for.html :

  > ***"… it is important to consider opportunity costs: i.e., if you enlist your child in this intervention, what opportunities are they going to miss out as a consequence? For many of the interventions I've looked at, the time investment is not negligible, but Arrowsmith seems in a league of its own. The cost of spending one to three years working on unevidenced, repetitive exercises is to miss out on substantial parts of a regular academic curriculum."***

- Reflection by a past Arrowsmith participant who had signed a confidentiality agreement [necessarily anonymous because of that agreement] : http://www.docdroid.net/quc4/my-experiences-with-academic-difficulties-and-arrowsmith-by-anonymous.pdf.html.

  > ***"My parent whose idea it was to enrol me in Arrowsmith is terribly sorry that I lost what could have been my best years to this school. The loss of my mother's firm and the acquittal of her employees added to the loss of tens of thousands of dollars by my father can all be owed [sic] to Arrowsmith. Not to mention me falling back two years in school or losing many precious friendships that I lost to leave for Toronto and attend Arrowsmith."***