

Good enough: when is evidence-based intervention ready for dissemination?

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Part 1 “*What is known is generally not what is adopted*” How can we shorten the time lag from research into practice without giving up on rigorous research standards?

Overview

Much has been written about the missing links in the science-to-service chain, since, as Fixsen et al (2005) note, in many human services “*what is known is generally not adopted*”. We have an increasing body of knowledge about the core principles and the specific behaviours of effective practice. Yet the technology-transfer of certain aspects of knowledge about what is effective, especially into ‘usual care’ settings, remains a challenge (Durlak and DuPre, 2008). For many, it is still taking place at an ‘unacceptably slow pace’ (Mitchell 2011).

The explanation for the gap between research and practice (and thus potential solutions for closing it) may have been changing in recent years. A few years ago, the problem was often described as located with funders and commissioners of services: they either didn’t have, weren’t aware of, or weren’t using, robust evidence about ‘what works’. This analysis of the problem underpinned (in some countries at least) a huge growth in evaluation research itself, especially centred on the measurement of outcomes; and a vast expansion in funding for the dissemination of research messages in increasingly refined and prescriptive ways, including as hierarchies of ‘accredited’ or approved evidence-based interventions (EBIs) and treatments. Thus, although there are undoubtedly cases where, for a variety of reasons, commissioners are still not using evidence, commissioning and funding bodies have become much more evidence-aware in their selection and support for specific programmes and approaches. Indeed, some would argue we are now even at risk of going to the other extreme, and driving out innovation and locally-developed approaches altogether, on the basis that they are not yet proven. But still, things have moved on.

Right now, the challenge may lie elsewhere. Specifically, it may be less about ‘funding the right things’, and more about two other areas of deficit:

- Failure to implement the right things **for the right context, in the right way** (often described as ‘*implementation deficit*’); and
- Failure to **exploit the knowledge** from years of research on the ‘narrow spectrum’ of EBIs for the improvement of the ‘broad spectrum’ of services as usual (SAU), which cater to the vast majority of children and youth in the community; (‘*translation deficit*’)

This paper makes three propositions for tackling these deficits and closing the science to service gap more quickly:

1. Human services research needs to expand its frame of reference away from a narrow focus on impact to a wider focus on **implementation**¹. This requires developing sophisticated, multi-level and context-sensitive frameworks for research that are theoretically driven and empirically populated by data on *implementation ecology* and *implementation drivers*, and which accommodate and helps to make sense of *complexity and turbulence* rather than characterising ‘context’ as a set of confounding variables that prevent the drawing of conclusions about effectiveness. Without this information, we can only speculate if new innovations are ready for dissemination.

2. We need to learn the lessons emerging from the comparatively young field of implementation science and practice. These strongly suggest that commissioning ‘the right things’ is only the start of the journey to better outcomes. Having commissioned a promising, or even ‘proven’ intervention, funders and commissioners need to pay much more attention to providing on-going support for providers and practitioners to tackle the challenges of real world implementation, especially through the deployment of hands-on, **implementation support**. This is where we get serious about bridging research and practice and supporting the readiness of innovations for ‘going to the market’.

3. Closing the science to service gap isn’t about abandoning rigorous science, but about putting science for this field in its rightful place: i.e. being clear that the science is ‘in the service of practice’, not an end itself. This might mean **revising our conceptions of what counts as science** (and it may not always be an RCT). In the *complex adaptive environments* that characterise real world and especially community-based service settings, current orthodoxies of scientific method may not provide all the answers. This is perhaps why so many apparently ‘gold standard’ research evaluations which work within the narrow parameters of experimental method often yield disappointingly inconclusive and partial pictures. The definition of a *complex system* is one in which “*even knowing everything there is to know about the system is not sufficient to predict precisely what will happen*”. The definition of a *complex adaptive system* is one where the system learns from experience *and modifies itself* accordingly (Welbourn et al, 2012). Under these circumstances it is hard not to agree with Sawhill, in her preface to Schorr’s monograph (2003), that in order to close the gap faster, it may be necessary to entertain “*a trade-off between knowing a few things very well and more things with less certainty*”.

Implementation as the Accelerant

Implementation theory and research

The concept of ‘implementation deficit’ has become one of the main foci of the emerging field of implementation science, and resonates widely around the world and in the international literature. Implementation has therefore been claimed to be the missing link – or “*the ‘to’ in the ‘science-to-service chain’*” as Fixsen et al (2009) frame it².

Moreover, implementation, it is claimed, is the real challenge for human services:

¹ Defined as: *a specified set of activities intended to put into practice a programme or intervention of known dimensions*

² This is not just a problem for those working in intervention science in the sphere of child and family development. Writing on implementation challenges in the wider health sciences, Tansella and Thornicroft (2009, p284) commented recently: ‘*Although there are thousands of published papers on the development of clinical guidelines across healthcare, there are relatively few on how to put guidelines into cost-effective, routine practice in any specialty*’.

Authors from around the globe....agree that the challenges and complexities of implementation far outweigh the efforts of developing the practices and programs themselves. Fixsen et al (2005 op cit).

Supported by a growing empirical evidence base that tests out their operation in practice, the increasing number of published implementation frameworks suggest that drivers of implementation success operate at multiple levels and across multiple dimensions, in complex and shifting (and 'integrated and compensatory') relationship to one another (e.g. Meyers et al 2012).

They are beginning to show just how complex is the ecology of practice, and on how many levels effective practices may be supported or undermined.

These approaches are changing the way we carry out needs analyses, how we assess the goodness of fit between favoured approaches and the contexts in which they will be delivered, how we assess the feasibility of delivery, and how we evaluate impact and scalability. The implementation research community is now turning the spotlight away from the content of effective practices ('what works') towards the determinants of effective practice ('how works', 'why works'). Learning how organisational supports can increase the efficacy of practice behaviours is opening the door to multi-disciplinary teams that combine research and practice to support provider organisations to get more out of the funding they receive. Understanding more about how '*systems trump programs*'³ will in turn lead to a greater understanding of how we assess system-readiness to support innovation and how funders and commissioners with system-wide influence can work to ensure the results of their point interventions are not undermined or diluted.

Not just a question of fidelity

To the extent that we have generally been paying any attention to the implementation of evidence based interventions, much of the debate – until very recently – has centred around the concept of fidelity: is the intervention being implemented 'as designed'?. When results of replications of otherwise successful EBIs are disappointing, lack of fidelity is often what is blamed, and the responsibility is often assigned to the practitioners involved in direct delivery. There is of course important evidence that treatment integrity (or quality) is associated with the strength of effect. But an exclusive preoccupation with fidelity as the only show in town may be holding us back. First, what 'as designed' means is frequently impossible to discover, whether from programme documentation, evaluation reports or scholarly articles. Second, not all interventions (including EBIs) are fully specific about their design in terms of what are core components that cannot be varied without compromising efficacy, and what are acceptably modifiable in response to context. Third, and most importantly given the complex adaptive context in which most real world services

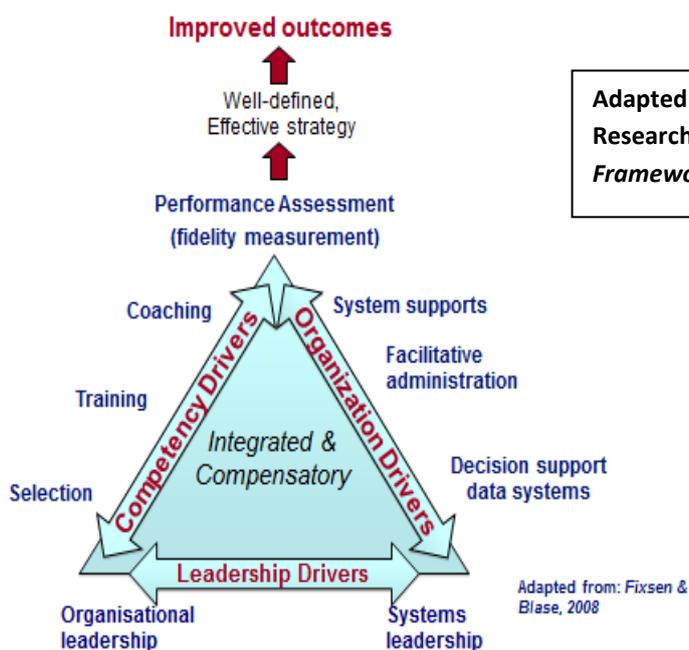
Implementation drivers: ecology, culture and context

1. **The community** (characteristics of the children and families who use services)
2. **The intervention(s) characteristics** (the type, modalities and effectiveness of the specific services or treatments provided)
3. **The provider characteristics** (the people/staff that deliver the selected interventions)
4. **The delivery system** (the structure and functioning of the provider organisations)
5. **The support system** (the technical assistance and other supports provided to the providers of the service and their staff)
6. **The wider children's services system** (the nature, extent and structure of children's services in the locality and at state, or federal /national level)
7. **The wider social context** and social attitudes to family, childhood and youth, and to human development

³ Patrick McCarthy, Annie E. Casey Foundation 2002, quoted in Fixsen et al (2005).

operate, it is not a recipe for successful replication for developers to insist that implementation ought not to vary with local context. The implication is that developers must be prepared to work with local providers to re-create, perhaps many times, a locally-adapted model of the intervention. Thus, having developed a promising programme, the developer's work has only just begun. The next step is to consider whether and how it can implemented in different settings and still be effective.

Even if these problems are addressed, the obsession with 'high fidelity' as synonymous with 'quality implementation' may still block progress in that it distracts attention from the many other complex factors that bear on effectiveness. Implementation theorists would argue that fidelity – important as it may be – is only one of the many factors that determine whether a promising intervention delivers the goods. As the NIRN Active Implementation Framework (reproduced with adaptations, below) illustrates, many 'downstream' factors are hypothesised to determine outcomes long before fidelity comes into play.



Adapted from: The National Implementation Research Center's Active Implementation Framework

Researching implementation factors

For at least a couple of decades now, policy-makers, commissioners and funders of some innovative social programmes and interventions have been insisting that service providers be independently evaluated as a condition of funding. In recent times, research effort has been most strongly focused on impact evaluation, and has led to a substantial increase in resources to develop and apply ever more complex methodologies, including variations on experimental design. To the extent that 'process' or 'formative' evaluations have been conducted, these have tended to be undertaken more as parallel descriptive pieces, unsystematic in design and execution, rarely driven by strong theory, and rarely strongly analytic in linking back 'process' findings to 'outcomes' (except all too often, as post hoc explanations for equivocal or disappointing intervention results). Generally they have not been fashionable or seen as the 'main event' in evaluation research for some years.

As a result, we find little implementation-relevant data reported in the literature. Even as some researchers are developing methods for extracting implementation data into systematic reviews (for example a team at Oxford), they are noting that critical data are often absent from journal papers, echoing findings we reported almost a decade ago in relation to data on the implementation of parenting programmes (Moran et al 2004). A clear implication here is that funders of future research

may need to consider placing as much emphasis on the collection and analysis of implementation data as they do on robust measurement of outcomes.

Implementation supports

We know from research that effectiveness is critically determined by the behaviours of the practitioners and staff who deliver services on the front line. But whilst we are still building knowledge about how to achieve what Karen Blase refers to as ‘lasting changes in the behaviour of well-meaning professionals’, we do know what *doesn't* achieve practice change.

- Dissemination⁴ (reports, articles, briefing papers, presentations) alone doesn't do it.
- Diffusion (guidelines; mandated approaches) alone doesn't do it
- Training alone doesn't do it.

These are necessary but not sufficient for uptake into practice.

Training and Coaching			
TRAINING COMPONENTS	OUTCOMES		
	% of Participants who Demonstrate Knowledge, Demonstrate New Skills in a Training Setting, and Use new Skills in the Classroom		
	Knowledge	Skill Demonstration	Use in the Classroom
Theory and Discussion	10%	5%	0%
...+ Demonstration in Training	30%	20%	0%
...+ Practice & Feedback in Training	60%	60%	5%
...+ Coaching in Classroom	95%	95%	95%

The table, from research by Joyce and Showers (2002), shows that only when coaching is added to the mix of dissemination and training do we see substantial, lasting behaviour change in practice settings. The implication is that is we want to accelerate uptake of evidence-based behaviour change by practitioners, we need to get serious about investing in different and more intensive ways of supporting staff that go beyond training.

The data above show that more intensive and hands-on strategies are needed in order to achieve changes in practice in real-world settings, and studies (mainly from the USA, where this kind of support or ‘technical assistance’ has been pioneered) give increasingly strong empirical support for the combination of training and on-going technical assistance as a route to better intervention results (Meyers et al op cit). Therefore it is heartening to see increasing examples of how policy and commissioning bodies in Europe as well as in the USA are recognising that service providers need not just funding to innovate, but support to implement innovation and take it to sustainability. This may include funding the costs of ‘purveyor’ services provided directly by or under licence from the developers of EBIs⁵, but other significant examples (in Europe) include the Atlantic Philanthropies in Ireland, who backed up their multi-million Euro investment in community-based early intervention and prevention with a suite of implementation supports to help local providers. These included

⁴ Terms used in the UK-English sense: *dissemination* (the ‘scattering of ideas’ and spreading of information, or knowledge by written or oral means), as contrasted with *diffusion* activities (active encouragement to adopt specific innovative practices) and *implementation* activities (applying the learning in specific local contexts to change behaviours across the system). Dissemination and diffusion can influence thinking and intentions; implementation on the other hand influences practice on the ground.

⁵ E.g In the UK, the British government have established a ‘national implementation service’ specifically to provide local authorities/municipalities with support in the implementation of government-funded/prescribed programmes of intervention (MST, MTFC, KEEP)

access to paid-for implementation support from a local centre (the Centre for Effective Services, www.effectiveservices.org), specially established for the purpose, and consultancy from overseas. In the US, the concept of multi-disciplinary 'Implementation Teams' - both publically and privately-funded and who work on the ground to support local providers across a wide range of implementation challenges - is gaining credibility and looks set to become an established and thriving area of provision. Typically teams are multi-disciplinary, containing experienced researchers, practitioners, and organisational change-management professionals. They focus on matters such as *implementation drivers* (quality integration and sustainability), *data for decision-making*, (needs, fidelity, outcomes), *organisational and systems factors* (capacity development, structures, alignment, policy), and *problem solving* (regular support, trouble-shooting, brokering).

In Europe, such activity is still limited and fragmented, but is increasing as interest in implementation science and practice gathers momentum. Notably, some of the efforts in Europe are focusing not just on the 'proven' EBIs but on translating implementation science and practice know-how to support the improvement of services as usual and local innovations that are evidence-informed but not fully evidence-based. They are also using implementation thinking to support on-going commissioning decisions.

There is as yet limited evidence to *prove* these kinds of supports enhance effectiveness (although see the table below), but it seems inevitable that as implementation support skills develop and evidence of their added value accumulates, funders and commissioners of social interventions will want to consider placing more emphasis and more resource on this kind of provision.

		IMPLEMENTATION	
		Expert Impl. Team	NO Impl. Team
INTERVENTION	Effective	80%, 3 Yrs	14%, 17 Yrs
		Effective use of Implementation Science & Practice	Letting it Happen Helping it Happen

Fixsen, Blase, Timbers, & Wolf, 2001 Balas & Boren, 2000
Green, 2008

Data from the National Implementation Research Network (Van Dyke 2013)

Whilst still not achieving *instantaneous* results, hands-on expert implementation teams can support more uptake of effective practice, faster, when compared with more passive 'letting it happen' approaches.

Conclusions - Avoiding 'rigour-mortis'

The question asked at the start of this discussion paper was how is it possible to shorten the timeframe for uptake of research into practice without sacrificing rigorous research standards. One suggestion is to widen the framework of what we research. Another is to provide evidence-informed implementation support to practice (and policy). But to do either of these things successfully, and with apologies for the pun, we may have to address the 'rigour mortis' that we may have (unintentionally) encouraged by an overly narrow focus on approved EBIs; on fidelity as the main explanatory factor behind interventions that fail; and on research designs that cannot capture complex adaptive contexts.

Accepting that the frame of reference for research in the service of practice needs to expand to include more than just evaluation of impact quickly leads to the conclusion that overemphasis on certain

Rigour (US: Rigor)

(Oxford Concise Dictionary Ninth Edition)

1. Severity, strictness, harshness
2. Logical exactitude (*rigorous*: strictly exact or accurate)
3. Strict enforcement of rules
4. Austerity of life; puritanical discipline

types of research knowledge is likely to be unhelpfully exclusive. Many themes that are critical to understanding implementation simply cannot be tackled using the usual toolkit of the evaluation scientist, and certainly not with the ‘gold standard’ of experimental methods⁶.

So, it is not just a question of accelerating the uptake of existing research knowledge, but of expanding the scope of knowledge that we seek, and expanding the methods that we use.

Closing the gap between research and practice may then in fact be all about coming to terms with the need for adaptability and flexibility in real world practice settings. In the search for silver bullets we may have been fetishising ‘EBIs’ as if they were static, one-time, catch-all solutions. But the reality is that we fund and deliver interventions in complex adaptive systems where the only thing that is predictable is constant change and challenge. ‘Fidelity’ in this context might in fact be an illusion: what we need are clearer parameters within which *adaptive responses* can be made. Rigour in this context should not mean inflexibility; it should rather mean ‘evidence-informed adaptation’, and putting the tools of science into the service of practice as creatively as possible. The sooner EBI developers and researchers get our heads round this, the better and faster we can work together.

Part 2. How does the Colebrooke Centre encourage research on the translation process; what strategies have we used in our research; findings and conclusions.

Overview

The Colebrooke Centre (www.cevi.org.uk) is the first and currently the only centre in the UK to be wholly dedicated to research, policy and practice development in implementation. It is part of a new generation of such centres that are springing up across the world. The Centre’s mission is both to raise awareness of the emerging evidence that ‘implementation matters’ and to promote the use of implementation science knowledge and practice know-how by commissioners and providers of services for children and families. It is intentionally small and specialist, working extensively in collaborations with academic and practice teams as well as alone. Funders include national and local government, philanthropies, ‘improvement’ bodies, and NGOs providing services.

Although Colebrooke links with ‘purveyor’ teams (defined as implementation specialists who support the implementation of specific EBIs), the Centre is mostly concerned with the wider range of services and programmes that are offered to children and families in the community. Many of these are not as ‘evidence-based’ as we might hope (and some are hardly evidence-based at all), but most do wish to become more evidence-informed and to use evidence, both from intervention science and from implementation science, to improve their effectiveness. This is arguably a much more challenging ‘translation’ task than supporting well-manualised EBIs and takes in a huge range of whole-system factors that impinge on effectiveness. It takes up where dissemination and diffusion activities stop, and involves any or all of: policy review; analysis of systems-factors; needs analysis; supporting the selection of appropriate interventions; installing and implementing innovation; staff capacity and workforce development; leadership development; strategies for maximising investment impact; and of course the evaluation of the implementation process. Our work is informed by (and is now contributing to) the developing field implementation theory and we use frameworks and constructs such as *active implementation frameworks*, *implementation stages* and *improvement cycles*, *implementation drivers*, and *core implementation components*, to inform the design and analysis of our work. Many of these ideas originated in the US and so part of our challenge is to find

⁶ Meyers et al, op cit, note: “Because implementation often involves studying innovations in real world contexts, rigorous experimental designs encompassing all of the possible influential variables are impossible to execute”

a distinctively 'UK' approach that recognises the particular social and system cultures of the UK whilst connecting with the global advance of this field.

Getting traction

As a young centre (we started work in spring 2012), we are currently bringing our first clutch of projects to a close. Most early funded projects were seminar series and research studies: this was the easiest way to get traction in terms of making a persuasive case to funders for using an 'implementation lens' as a productive and fresh way to answer their questions. Almost all our work is won through competitive tendering, but until very recently familiarity and awareness of the developing evidence-based around implementation was little developed in UK in social care. Indeed, many funders are still failing to make the distinction between dissemination and the much more active process of implementation. To use the commercial terminology, we are therefore engaged in building a market as well as offering services in it. This has meant responding to Invitations to Tender by creatively 'reframing' the stated aims and objectives, as well as the suggested methods, and emphasising (and even insisting on) a 'co-constructed' approach where we work closely and interactively with stakeholders at both strategic and operational levels.

Page | 8

One very healthy sign of growing credibility for this approach was being commissioned in October 2012 for a major study of systems leadership in children's services, funded by a national body that provides leadership development for Directors of Services for Children (and increasingly also to adults) in local authorities. This is a collaboration that we lead with the Cass Business School at City University London, a Danish purveyor centre, and the universities of Toronto, New South Wales and North Carolina. As part of the work we have interviewed Directors of Services and Chief Executives of Local Authorities and national NGOs all over the UK, and our collaborators have contributed international perspectives. We expect that the findings will help to expand theory and practice in active implementation frameworks by focusing on the under-exploited power of effective cross-systems leadership - a particular form of leadership that hinges on a different mind-set and substantial personal qualities and skills, and which is increasingly required in the complex adaptive environment of UK public services where the 'burning platform' is austerity and the 'burning aspiration' is to provide 'more for less' and reduce wastage and duplication.

Another example is a study of impact and 'the implementation of innovation', in collaboration with Loughborough University and a youth-focused NGO. This is a three year project for a fostering charity that has invested £3m to introduce social pedagogy into UK fostering. Colebrooke is using implementation theory and tools to assess the site and system-wide factors that hinder or enable innovation to take root and go mainstream. A distinctive factor of an 'implementation approach' is that this, and other projects, incorporates active feedback cycles for the programme providers, so that they can use learning as it emerges to improve and strengthen their work on the ground. The idea of on-going feedback for the providers (not just the funders) is one that sometime challenges the orthodoxies of rigorous evaluation method - but we believe it is vital for bridging the science to service gap and in particular for shortening the 'translation' time-lag.

As the Centre has gained profile we have been able to move from the *study* of implementation into active, evidence-informed *support* for effective implementation. Partnered with associates with specialist expertise in research and practice in adoption services, staff from the Centre are working with local authorities to review, analyse and improve their adoption and post-adoption services to meet new inspection and regulatory frameworks coming into force this year. We are also about to start work to evaluate and advise on a philanthropy's approach to nurturing and scaling up innovation in education, which is likely to include a focus on investment in developing capacity through implementation support. We are helping a family support charity review its theory of change, which will in turn help them to take a fresh view of their delivery model as well as their impact measurement strategy.

Observations

It is early days for the Centre, but observations thus far are that:

- There is a broad and growing consensus that understanding *what* works doesn't help close the science to service gap effectively without knowing *why* it works and *how* it works (and therefore can it work again, elsewhere)
- Funders and commissioners are highly receptive to the potential offered by more systematic study and application of learning about implementation, especially in respect of helping new projects to achieve greater sustainability.
- Funders, commissioners and especially service-providers are frustrated by the propensity of researchers not to share findings as they emerge, and are urgently seeking different models of more active translation that is co-produced between research and policy/practice, (albeit that there are challenges attached)
- Now that the funding base for research is palpably shrinking, there is appetite to get better value for money out of commissioned studies, and a disaffection with complex and expensive impact studies that provide only inconclusive, non-actionable findings
- There is a need to begin linking rigorous outcome research to implementation practices and strategies – and considering whether and how we can bring the strength of experimental design to that effort.

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