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## **DOCTOR OF PHILOSOPHY**

### **Evidence-based practice, autism education and Applied Behaviour Analysis: Do Behaviour Analysts need to practise what they preach?**

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**Evidence-based practice, autism education and Applied Behaviour Analysis: Do  
Behaviour Analysts need to practise what they preach?**

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Thesis submitted to the School of Psychology, Bangor University, in partial fulfilment for the  
degree of Doctor of Philosophy

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## Summary

Applied Behaviour Analysis (ABA) uses our understanding of the science of behaviour to address issues of social significance (Baer, Wolf & Risley, 1968). One example is the support and education of children with autism, and there is a growing evidence base for the effectiveness of behavioural interventions with this population (Lai et al., 2014; Eldevik et al., 2012). However, getting evidence from research into practice is not straightforward (Rycroft-Malone, 2004). Translational or implementation science is the basis of this thesis. Two models from translational science (Rycroft-Malone, 2004; Fixsen et al., 2005), identify four factors critical to the successful implementation of evidence-based practice: core knowledge and skills; organisational processes which embed these into practice; consumer involvement in, and perceptions of the selection and evaluation of practices; and the wider national policy and regulatory framework. Using a range of research methods, this thesis explores these factors in relation to ABA as an intervention in the support and education of children with autism. Chapters include a description of the development of a competence framework for ABA (Chapter 2) and an example of a practical application of the framework – identifying ways of measuring staff competence (Chapter 3). Chapters 4 and 5 are both based upon and describe the first study in the UK to attempt to identify and quantify the use of behavioural interventions amongst a sample of UK parents and their beliefs about ABA; and Chapters 6 and 7 outline in two separate papers, the first study in the UK to explore the perceptions and experiences of commissioners of services in the support and education of children with autism. The findings from these studies are discussed in relation to theoretical models of implementation. The implications of these for the field of behaviour analysis are outlined and recommendations for further study are made.

## **Chapter 1. ABA and autism intervention: What factors underlie the successful implementation of evidence-based practice? An Introduction to Current Research.**

Applied Behaviour Analysis (ABA) is a branch of the science of behaviour analysis which uses our understanding of learning and motivation to address issues that are of concern to society (Baer, Wolf & Risley, 1968). One such issue is the support and education of children and young people with autism spectrum disorder (ASD). There is an emerging evidence base for the effectiveness of behavioural interventions with this population (Luiselli, 2014; Eldevik et al., 2012; Peters-Scheffer et al., 2011), and this is reflected in guidance and practice in several parts of the world (McPhilemy & Dillenberger 2013). To date, however, recommendations for the use of ABA interventions have not been published in the UK, apart from the recent revision of Scottish guidance for ASD interventions (SIGN, 2016).

The question of how basic research moves out of clinical settings and into practice that is effective, sustainable, and leads to meaningful outcomes is the subject of translational or implementation science. This is the focus of this thesis. The research questions draw upon the conceptual work of Fixsen et al., (2005) and Rycroft-Malone et al., (2004) and explore four of the factors that have been identified as critical to the successful implementation of evidence-based practice: clearly identified core knowledge and skills associated with implementation; organisational processes which embed these into practice; consumer involvement in, and perceptions of the selection and evaluation of practices; and the wider national policy and regulatory framework. Understanding where ABA sits in the UK in relation to these factors could help us better understand potential barriers that the field faces, and steps that may facilitate the successful implementation of evidence-based practice.

The initial impetus for this thesis came from my involvement with the UK ABA Autism Education Competence framework project – a stakeholder sponsored project that

included the wider ABA community. It was the basis of the first study. The three studies which followed were not collaborative in the sense of being stakeholder based projects but, as an active member of that stakeholder community, issues pertinent to the whole community informed the direction of study. The second study was based in an applied setting within which I worked. As part of that study, I worked alongside the existing team, and the setting's training and assessment processes so that the research did not create undue additional demands on my colleagues. I have made clear in relevant chapters the distinction between my own work and that which involved wider stakeholder engagement.

### **Autism and ABA**

It is estimated that approximately one percent of the population of children in the UK, as in other countries, have autism (Baird et al., 2006) and approximately half of children with autism also have an intellectual disability (Totsika et al., 2011). Autism is a life-long neurodevelopmental disorder characterised by difficulties with social communication and interaction and repetitive behaviours and interests (Lai, Lombardo, & Baron-Cohen, 2014). Diagnosis is based on observations and measures of a child's behaviour as, to date, no biological markers or tests have been developed that can identify autism.

The first published research demonstrating the effectiveness of an intervention based on ABA with a group of children with autism was the seminal study conducted by Ivar Lovaas, (Lovaas, 1987). Using an experimental vs control research design the team delivered the intervention to the group receiving "treatment" over a period of two years in home-based sessions for up to 40 hours per week. The teaching technique used was discrete trial teaching (DTT), which is based on principles derived from the science of behaviour, including stimulus control and reinforcement. Almost half (49%) of the children involved in the intervention group showed significant IQ gains and were able to enter mainstream classes

following intervention. Although there was criticism of the research methodology used to evaluate the intervention (e.g., this was a non-randomised design), it sparked a growth in the number of behavioural and educational “interventions” or “packages” offered in the support and education of people with autism (Dawson et al., 2010).

### **What is ABA?**

An issue that is explored later in this thesis (Chapters 4 and 5) is the use of terminology in the UK. In this thesis, ABA describes an applied science and so is understood to be an umbrella term that describes many different approaches and procedures derived from use of basic human learning principles. Examples of approaches that would fall within this umbrella term are: Early Intensive Behaviour Intervention (EIBI) (Eldevik, et al., 2009), Positive Behavioural Support (PBS) (Gore et al., 2013); and the Early Denver Start Model (EDSM) (Dawson et al., 2010). ABA interventions include those developed to address specific areas of concern such as communication, for example the Picture Exchange Communication System (PECS) (Frost & Bondy, 2002). However, in the UK, the term ABA is often included in lists of interventions and on websites alongside interventions based upon the principles of behaviour analysis such as those listed above (see Chapter 4). This is a category error (Keenan et al., 2010). However, in the studies described in Chapters 4, 5 and 7, ABA has been used alongside ABA-based interventions such as PBS and EIBI because the umbrella term is in common use in the UK and is recognised by participants. This is likely to be because of the history of ABA in the UK (see Chapter 2), the early association of ABA with home programmes (arguably EIBI programmes) and the continued use of the term ABA to describe services offered in schools as well as comprehensive models that have been developed for use in special schools.

## **The evidence base for behavioural interventions**

Behavioural interventions are increasingly being acknowledged as an effective way of supporting and educating children with autism (Luiselli, 2014; Eldevik et al., 2012). This includes evidence for the effectiveness in different settings and clinical focus, including: EIBI in home settings (Dawson et al., 2009); in mainstream pre-school settings (Eldevik et al., 2012); in clinical settings (Lovaas, 1987); ABA based intervention for older children in home settings (Eldevik et al., 2010); and of comprehensive models of ABA embedded into typical special and mainstream school settings (Foran et al., 2015; Lambert-Lee et al., 2015; Grindle et al., 2012). There is also evidence supporting the use of behaviourally based interventions for teaching specific skills. Examples include academic skills such as reading (Grindle et al., 2013) and mathematics (Tzanakaki et al., 2014); developing communication skills through teaching verbal behaviours (Landa, Hansen & Shillingsburg, 2017); using precision teaching to increase fluency (Kerr, Smyth & McDowell, 2003) and the development of specific technologies such as PECS (Frost & Bondy, 2002) and the Headsprout® Early Reading intervention (Tyler et al., 2015).

The National Standards Project (2015) aimed ‘to provide critical information about which interventions have been shown to be effective for individuals with ASD’ (p.9). Listed in the document are 14 interventions for children and young people (under the age of 22) that are classified as ‘established’. The group of interventions for which there was the largest body of evidence-based research was ‘behavioral interventions’. ‘Comprehensive behavioral treatment for young children’, which includes EIBI, was listed as separate to behavioural interventions and was included in the 14 established interventions; and a further five of these listed interventions draw upon the science of behaviour analysis.

The growing evidence base has contributed to the recognition of behaviourally based interventions within national policy and guidelines in some parts of the world. In the United



States for example, ABA is endorsed as an intervention approach for children with autism by a number of state and federal agencies, including the U.S. Surgeon General and the New York State Department of Health ([www.autismspeaks.org](http://www.autismspeaks.org)); in Canada, intensive behaviour interventions are the publicly funded intervention of choice in most provinces (Norris, Paré, & Starky, 2006); and in France the Haute Autorité de Santé (HAS), which produces national clinical guidelines, recommends ‘les interventions contemporaines fondées sur l’analyse appliquée du comportement (dites ABA contemporain)’<sup>1</sup> (p.25) for children and adolescents with autism.

### **ABA as evidence-based practice in the UK**

In the UK, published reports on the evidence base of behaviourally-based interventions are mixed. Lai et al., (2014) acknowledge that the ‘most effective interventions so far are behavioural and educational’ (p.904) but go on to report the evidence base for EIBI as ‘low or moderate’, and ABA as ‘not established’ (p.905) using internationally recognised evidence criteria. Other studies have noted that whilst ABA can produce promising results, individual child outcomes vary (Remington et al., 2007; Howlin, Magiati & Charman, 2009; Whiteford et al., 2012).

In addition, national policies and guidance in respect of the support and education of children with autism do not currently reflect either the emerging evidence base or guidance elsewhere. Rather, public health recommendations favour an “eclectic” approach (McPhilemy & Dillenberger, 2013). A recent exception has been the publication of Scottish guidance for ASD interventions (SIGN, 2016) which gives EIBI its highest rating and recommends ‘Access to support from staff trained in applied behaviour analysis-based technologies (e.g., Picture Exchange Communication System, discrete trial training, task

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<sup>1</sup> Contemporary interventions based on Applied Behaviour Analysis (known as ABA)

analysis, prompting, fading or shaping) to build independence in adaptive, communication and social skills should be considered for children with ASD.’ (p. 24). Guidelines produced by the National Institute for Health and Care Excellence (NICE) for the support and management of autism in children under the age of 19 (2013), do recommend the use of functional assessment (which comes from the behaviour analysis literature) as an intervention for behaviour that challenges but do not include any interventions based upon behaviour analysis in the specific interventions for the core features of autism.

Parents in the UK report that support for children with autism is typically delivered through education services (see Chapter 5). Guidance within education is limited. The Autism Education Trust (AET) (<http://www.autismeducationtrust.org.uk/>) national autism standards for schools and educational settings specifically state that its guidance does not include information on interventions because of the vast literature available. Similarly, although the Education Endowment Foundation (EEF) (<https://educationendowmentfoundation.org.uk/>) does list behavioural interventions as being effective at reducing challenging behaviour, in their guidance on pupil engagement and behaviour, but there is no specific guidance in relation to autism education.

Despite the mixed views of the evidence base and the lack of national guidance, there has been an expansion in the UK in the provision of education for children with autism using the principles of ABA ever since the first home programme (intervention provided to one child with a team of therapists working in his home setting) was set up in 1994. Chapter 2 describes the history of ABA. The key point at this stage worth noting is that much of the growth in demand for ABA in the UK appears to have been from parents. Research suggests that those parents who choose ABA often find that they receive little support within mainstream education and health services (Keenan et al., 2010). And whilst the number of professionals working in the field has also been growing, behaviour analysts are frustrated by

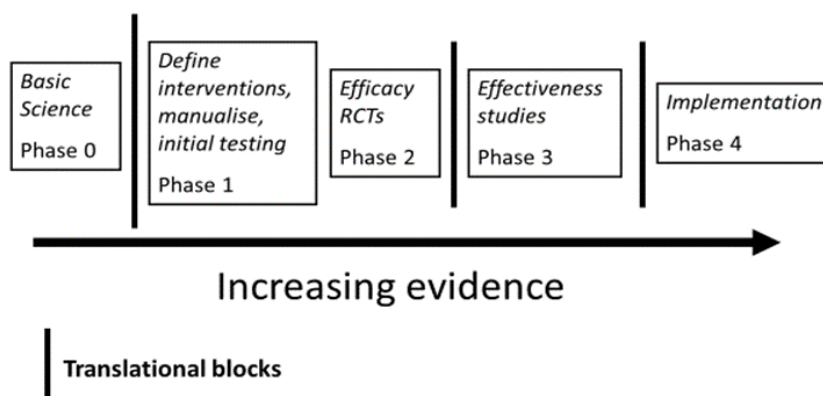
lack of opportunities within the current regulatory framework across health, social care and education for official recognition of the profession (see appendix A, Behaviour Analysis: Obtaining professional recognition in the UK. Briefing paper for Advisory Group: ABA Competencies Project, 12 October 2009). Anecdotal evidence (panel member, personal communication, 2013) with one of the panel members of the NICE guidelines on the management of autism in children suggests that this lack of official recognition is one of the barriers to NICE being able to recommend behaviour analysts as professionals included in multidisciplinary teams in the support and education of children with autism.

### **Translational science**

The gap between what we believe to be effective and what actually happens in practice is not just a problem for behaviour analysis. Translational science is concerned with the translation of basic science discoveries into clinical applications that, in turn, are implemented and offer consumer choice (Novins et al., 2013). Translation involves three stages. The first stage is the translation of a basic principles of behaviour into an intervention. Using behaviour analysis to illustrate this, an example would be the development of DTT as a teaching intervention based on the principles of stimulus control and reinforcement. Stage 2 expands basic findings to clinical practice (e.g., Lovaas' study) and Stage 3 is the widespread adoption of an intervention such as EIBI being the intervention of choice in the support and education of young children with autism in several states in Canada.

Arguably the development of ABA in the 1960s as a distinct branch of the science of behaviour analysis, and based on principles derived from the Experimental Analysis of Behaviour (EAB) successfully bridged Stage 1 and some aspects of Stage 2, (Mace & Critchfield, 2010). But it is not as simple as that. Thornicroft et al., (2011) (see Figure 1) suggest that Stages 1 and 2 also involve several necessary phases: 0) basic science discovery;

1) early studies that apply basic science to human problems; 2) early clinical trials; 3) late clinical trials; and 4) implementation. They also identify what they call translational blocks – points in the process which serve as barriers to moving on to the subsequent phase. They argue that the first translational block, for instance, is the translation of findings from basic science to practice. The second block occurs between phases two and three which they describe as ‘the interface between efficacy and effectiveness trials, where the former are clinical studies carried out in ideal, experimental conditions, while the latter are those investigations conducted under routine clinical conditions’ (p.2018). The third block is between phases three and four when interventions move from effectiveness studies into uptake and implementation into real world settings such that that they can be delivered accurately and consistently and are effective over time. Within this description is the notion of intervention fidelity – ‘the degree to which an intervention or programme is delivered as intended’ (p.40, Carroll et al., 2007). Only once phase four of the Thornicroft et al., (2011) continuum of evidence is established, can Stage 3 - the process of widespread adoption of an intervention as identified by Novins et al., (2013), begin.



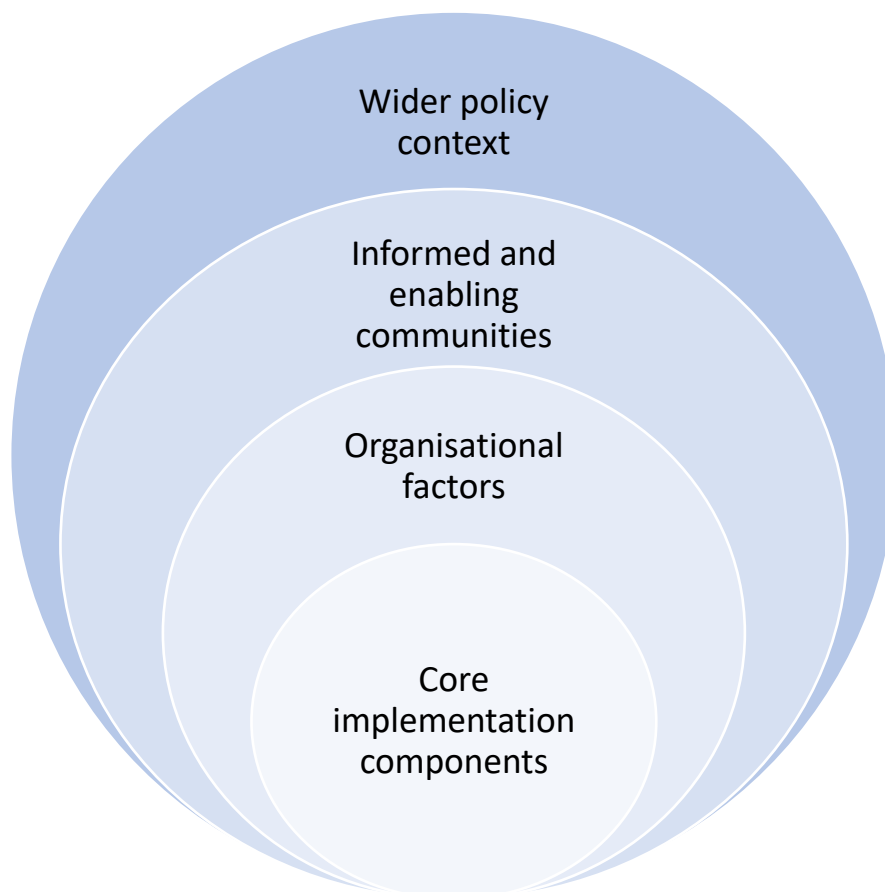
*Figure 1:* A continuum of evidence showing phases of evidence-based practice and potential translational blocks based on Thornicroft et al., (2011)

What does the literature tell us about Stage three and the process of the widespread adoption of an intervention? There is a surprising and paradoxical dearth of evidence-based models of translating evidence-based practice (Drake, Gorman & Torrey, 2002). In a systematic review of the implementation of evidence-based practice, Fixsen et al. (2005) looked at 1,054 sources in the literature around implementation, of which 743 were empirical studies, meta-analyses or literature reviews related to implementation factors. They found no agreed set of terms used in implementation research and few examples of organised approaches to or models of implementation. Rather, research focused on several different factors involved in, and operating at different levels of implementation. Drawing upon these, Fixsen et al., (2005) propose a model of implementation which has, as its starting point phase four of the Thornicroft et al., (2011) continuum of evidence. This model, together with one developed within the field of nursing are discussed below.

### **The widespread adoption of an intervention: Two models**

**1) Postulated relationships among four key factors that may help explain various implementation outcomes.** Fixsen et al. (2005) suggest (see Figure 2), that implementation is successful when: i) practitioners can competently deliver core implementation components of the intervention in question; ii) organisations provide the necessary infrastructure for training, supervision and outcome evaluation; iii) communities and customers are fully involved in the selection and evaluation of interventions and practices; and iv) regional and national policies and legislation create a favourable environment for implementation. The implementation of research evidence into practice (see Table 1) is only successful in the long-term when all four factors are strong, and intervention fidelity is high. Medium term success may be achieved either when external or organisational factors are enabling and strong but core components are weak; when external factors are favourable and core components are

strong but organisational factors are weak; when organisational and core components are strong despite unfavourable external factors and, interestingly, when organisational factors are strong even if core components and the external environment are weak. This latter point is based on research by Rosenheck (2001) who suggests that organisational factors are key to recruiting, training and developing staff to put research into practice and views 'organizational process as a largely unaddressed barrier and as a potential bridge between research and practice' (p. 1608). The use of the terms 'strong', 'weak', 'enabling', and 'hindering' by Fixsen et al., (2005) are subjective and definitions are not provided.



*Figure 2:* Multilevel Influences on Successful Implementation based on Fixsen et al., (2005)

Table 1: *Postulated relationships among core implementation components, organizational components, and external influence factors that may help explain various implementation outcomes (Fixsen et al., 2005)*

External factors	Organisational factors (ie making sure that what is delivered meets the competencies)	Core implementation components	Possible fidelity outcomes	Possible sustainability outcomes
Generally enabling	Strong	Strong	High	Long-term
		Weak	Low/medium	Medium-term
	Weak	Strong	High	Medium-term
		Weak	Low	Short-term
Generally hindering	Strong	Strong	High	Medium-term
		Weak	Low	Medium-term
	Weak	Strong	Medium/High	Short-term
		Weak	Low	Short-term

Source: Fixsen et al., (2005)

## 2. The Promoting Action on Research Implementation in Health Services

**(PARIHS).** The multi-level influences and the relationship between the factors identified by Fixsen and colleagues map quite well onto an example of an implementation model that comes from the field of healthcare. The Promoting Action on Research Implementation in Health Services (PARIHS) proposed by Rycroft-Malone et al., (2004) identifies three key factors that play a role in successful implementation: evidence, context, and facilitation. Each factor is positioned on a continuum, is dynamic and has a simultaneous relationship with the two other factors. For implementation to be successful Rycroft-Malone and colleagues suggest that there needs to be ‘clarity about the nature of the evidence being used, the quality

of context, and the type of facilitation needed to ensure a successful change process' (p. 914). Each of these factors includes several components.

**Evidence.** What constitutes “evidence” is more than the clinical research associated with the development of an intervention. Sources of evidence include basic research, clinical trials, evidence that clinical trials can successfully be implemented in practice (i.e., in real world settings), and beyond this, stakeholder experiences, perceptions and beliefs including patients and their families, practitioners and providers of services. Critically, communities (including key stakeholders) need to be included in decision-making and need to have evidence to help them with that decision-making.

**Context.** This refers to the environment or setting in which an intervention is implemented. Context includes having the right culture at individual, team and organisational levels to enable implementation; having leadership which ensures that there are adequate resources for implementation appropriately allocated, targeted and managed; and having systems in place for appropriate evaluation of the effectiveness of interventions. Effectiveness, in Rycroft-Malone et al.'s definition of context is not just about whether an intervention works or not. It includes improvements in standardised scores, the spread of effects, cost effectiveness, individual perceptions etc. This information is used to inform evidence.

**Facilitation.** This refers to ensuring that individuals, teams and organisations apply evidence to practice with fidelity but also includes providing the support needed to effect necessary changes in practices (i.e., changes to context). The core components of facilitation are purpose, role and skills and attributes. Purpose involves developing and ensuring a shared understanding of the facilitation process. This can include task specific objectives such as those involved in the mechanics of an intervention as well as more holistic aims such as developing a culture of reflective practice within an organisation. Role involves the



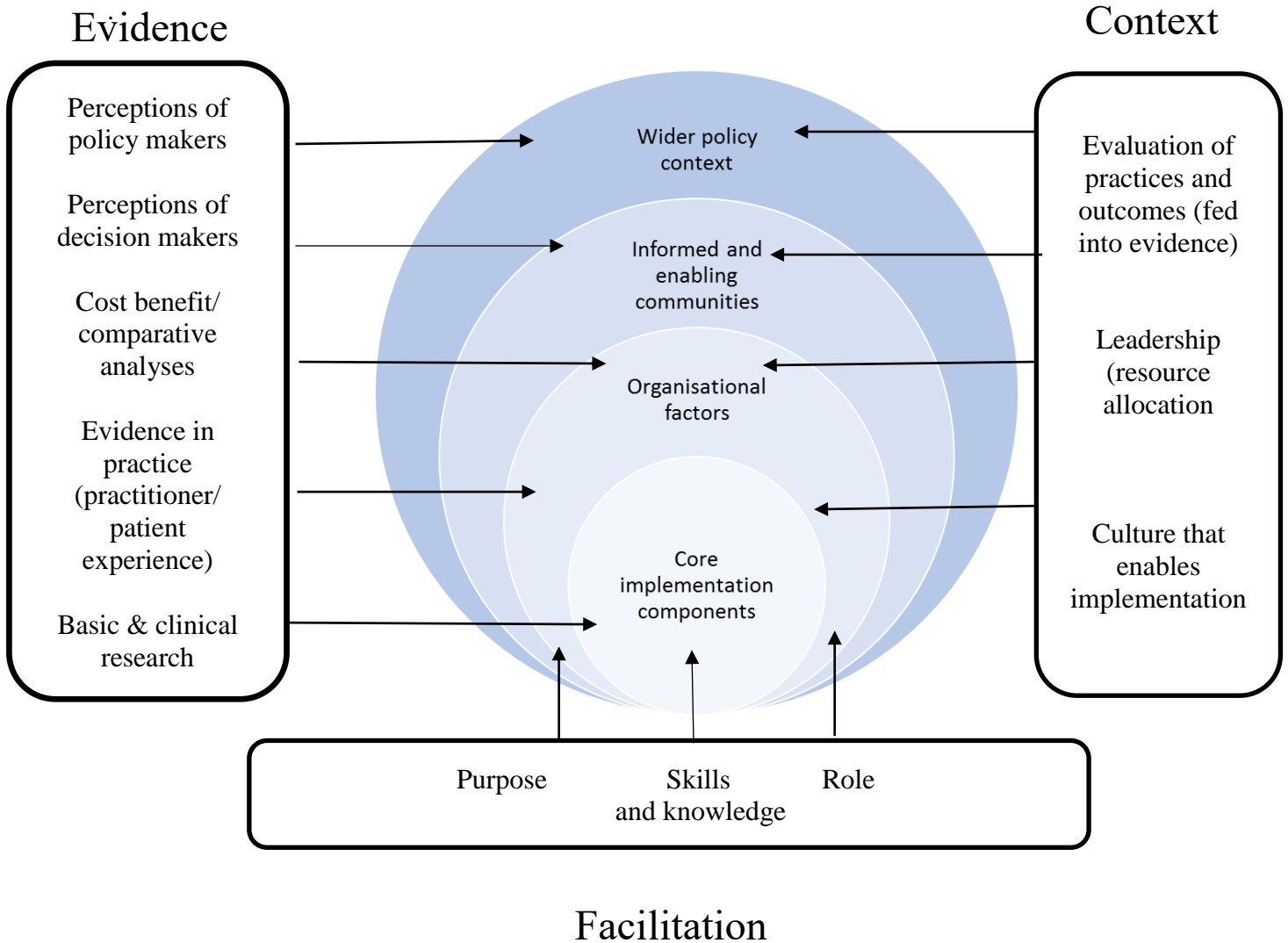
appointment of individuals or teams within an organisation to ensure that facilitation is prioritised and that facilitators are given the resources needed to bring about change. And it is critical that facilitators have the right skills and attributes to deliver evidence-based practice.

### **Two models – shared characteristics**

There is clear overlap between the factors identified by Fixsen et al., (2005) and the PARIHS model (Rycroft-Malone et al., 2004). Figure 3 attempts to illustrate the relationship between the two.

The broad definition of evidence provided by Rycroft-Malone et al., (2004) is relevant to each of the four factors identified by Fixsen et al., (2005). Evidence in the PARIHS model ranges from meta-analyses and randomised control trials (RCT) that the scientific community might regard as more robust, and which are used in the development of national guidelines such as NICE, to experiential and anecdotal evidence which can be important in the decision-making process on the part of those choosing services or interventions.

Context maps closely on to organisational factors, which Rosenheck (2001) identified as potentially the most important factor in the adoption of evidence-based practice. The reason for the significance of organisational factors may lie in the role identified in the PARIHS model that context/organisational factors play in the evaluation of practices and outcomes upon which evidence is based. The skills and knowledge element of facilitation is the critical factor within core implementation components and understanding the purpose of facilitation and ensuring that it has a role to play within organisations is key to embedding core implementation components into organisational practice.



*Figure 3:* Suggested relationship between 4 key factors proposed by Fixsen et al., (2005) and the PARIHS model of evidence-based practice (Rycroft-Malone et al., 2004)

### Structure of the thesis

The remainder of the thesis consists of seven chapters: six research chapters based on four independent studies, and a discussion chapter. Each of the research chapters has been, or will be, submitted for publication and they are therefore written as stand-alone pieces of

work. In the thesis, the intention was to explore four key factors which models of implementation research suggest are key to evidence-based practice: i) core knowledge and skills associated with implementation; ii) organisational processes which embed these into practice; iii) consumer involvement in, and perceptions of the selection and evaluation of practices; iv) the wider national policy and regulatory framework.

Chapter 2 is focused on the first stage of implementation: core knowledge and skills associated with implementation. I describe the development of a competence framework for ABA for practitioners working with children with autism in the UK in education settings. The chapter includes a review of the common and critical features of competence frameworks across health and education in the UK and, based on these, proposes a framework appropriate for the field of ABA, specifically focused on autism education in the UK (UK ABA Autism Education Competence Framework, Level 1, 2011, see Appendix B).

It is recognised that the development of a competence framework does not result in best outcomes without proactive work designed to establish it in practice that are embedded into organisational practices – the second stage of evidence-based practice. In Chapter 3, I discuss an example of a practical application of the framework – identifying ways of measuring staff competence. I describe an empirically based study which explored the construct validity of three different ways of assessing staff competence based on the UK ABA Autism Education Competence Framework Level 1 (2011).

The research undertaken for Chapters 2 and 3 assumed a demand for behaviourally based interventions in relation to autism education. Chapter 4 seeks to quantify that demand. I identify and describe the interventions used in the support and education of children with autism currently and in the past, amongst a sample of UK families. I also explore associations between parent and child characteristics and interventions used. The data show that visual schedules, speech and language therapy, and ABA were currently most in use with the

parents sampled, and that the majority of these parents reported using more than one intervention concurrently. Younger children were more likely to be currently using at least one intervention, and current use of ABA was found to be associated with higher parental educational level.

Having established that ABA is one of the interventions currently most in use in the UK, in Chapters 5, 6 and 7, I turn to the third and fourth stages of implementation: consumer involvement in, and perceptions of the selection and evaluation of practices; and the wider national policy and regulatory framework within which consumer decisions are made. Within autism education, research suggests that parents are often, and not necessarily by choice, key decision makers. Chapters 4 and 5 are based on one study – the first reporting exclusively on UK data from a survey which attempts to identify and quantify the use of behavioural interventions amongst a sample of UK parents (Chapter 4); and to identify and quantify UK parents' beliefs about ABA in the education and support of children with autism (Chapter 5). I describe the Parental Beliefs about ABA and Autism scale (P-BAA), developed for the study. Current and/or past use by parents of any behaviourally based approach including ABA was a significant predictor of P-BAA scores as were parent education, household income and child diagnosis: experience of a behaviourally based approach, higher levels of education and income and children at the more 'severe' end of the autism spectrum were associated with more positive beliefs about ABA.

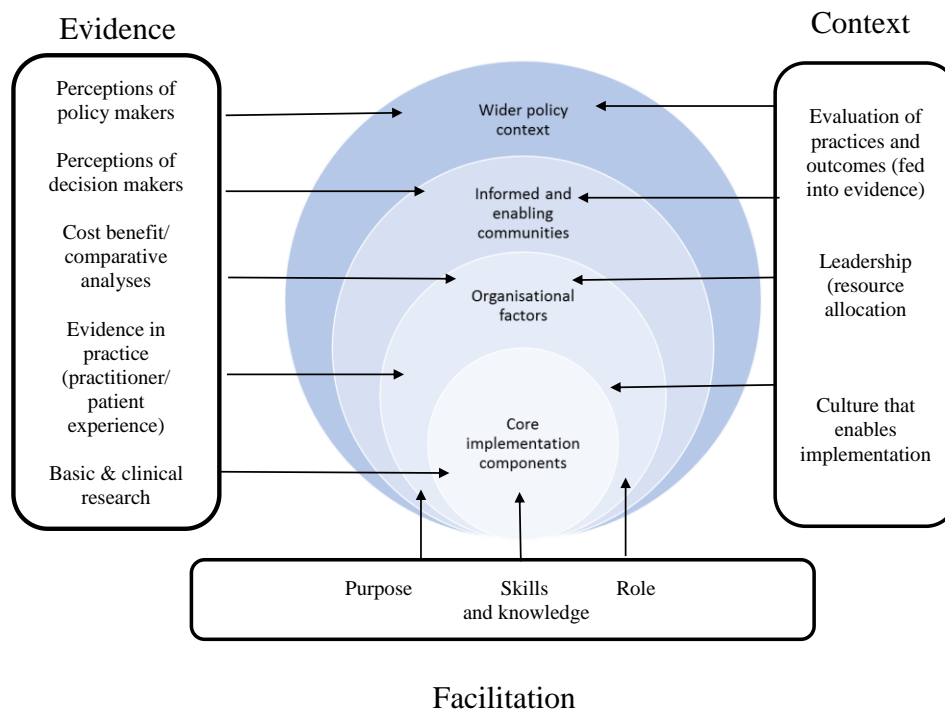
Attention is switched in the fourth study, described in Chapters 6 and 7, to the perceptions and experiences of commissioners of services in the support and education of children with autism. Although the demand for ABA may come from parents, the responsibility of providing those services often rests with local authorities and, increasingly the headteachers of schools. Interviews with 12 people involved in the commissioning of services with a focus on their experiences of providing behavioural interventions were

analysed using thematic content analysis. Four themes (Chapter 6) in relation to the characteristic of commissioning emerged: i) variation in commissioning; ii) primary drivers of commissioning are shared; iii) the drivers of educational provision create tensions within the commissioning system; iv) everyone is frustrated with the commissioning system. Three themes (Chapter 7) in relation to the commissioning of behavioural interventions emerged: i) all local government organisations offer some form of “behaviour provision”; ii) ABA is difficult to put into practice in a UK education context; iii) Positive Behavioural Support (PBS) is more palatable than ABA.

Chapter 8 draws together the findings from these studies and discusses them in relation to the models of implementation described above. The implications of these findings for the field of behaviour analysis are outlined and recommendations for further study are made.

## Chapter 2

### Developing a Competence Framework for ABA and Autism: What can we learn from others?<sup>2</sup>



The focus of Chapter 2 is on the first stage of implementation: core knowledge and skills associated with implementation. The chapter includes a review of the common and critical features of competence frameworks across health and education in the UK and, based on these, proposes a framework appropriate for the field of ABA, specifically focused on autism education in the UK (UK ABA Autism Education Competence Framework, Level 1, 2011,

<sup>2</sup> A version of this chapter has been published as: Denne, L.D., Hastings, R., Hughes, J.C., Bovell, V., & Redford, L. (2011). Developing a Competence Framework for ABA and Autism: What Can We Learn From Others? *European Journal of Behaviour Analysis* 12 (1) 217 – 230.

see Appendix B). Much of the work involved in the development of the competence framework was completed in collaboration with key stakeholders. Nineteen organisations and 81 individuals were involved in writing groups; 9 organisations and 34 individuals involved in evaluation; 5 universities participated in editing: Bangor, Cardiff, Kent, Southampton, Ulster; and the project was supported by an advisory group made up of representatives of key stakeholder groups. However, the analysis of competence frameworks was my own work and the main focus of this first study. The definitions of competence and the structure of the framework that were subsequently adopted were based on my proposals, informed by my analysis and I was also responsible for the design and management of the iterative process (writing, peer review, field evaluation) used to develop the framework.

### **Abstract**

Competence frameworks have become a defining feature of modern professions. They were originally developed to facilitate training and to help benchmark pay scales. However, they are increasingly being used to achieve a high level of consistency with respect to quality of service provision, assessing performance, and providing a basis of common language both within a profession and for its external audience. The present paper describes the process I employed to define the scope and structure of a framework appropriate for the field of ABA, specifically focused on autism education in the UK. I present an overview of the issues that led to the proposals to develop such a framework, a review of the common and critical features of competence frameworks across health and education in the UK, and discuss how these features might best map onto ABA practice in typical settings, as well as the Behavior Analyst Certification Board (2005) Behavior analyst task list, third edition.

**Key words:** competence framework, competencies; autism, therapists, supervisors; consultants, Behavior Analyst Certification Board®.



### **Historical Context**

The first use of Applied Behaviour Analysis (ABA) for a child with autism in the UK was a home-based programme established in 1994. By 1997 it was estimated that there were 250 families involved in home programmes (Mudford, Martin, Eikeseth, & Bibby, 2001). Two parent led organisations, Parents for the Early intervention of Autism in Children (Peach) and Parent's Education as Autism Therapists (PEAT) were set up in 1996 in England, and 1997 in Northern Ireland, respectively. Peach now estimates that there are just over 500 families running home programmes in England. The organisation currently works with 138 families and has 2 clinical managers and 8 case managers on its staff (M. Williams, personal communication, November 22, 2010). The UK Young Autism Project (UK YAP), another home programme provider in England, started in 2000 with 4 members of staff. They currently have 35 employees and provide services to approximately 100 families (C. Gale, personal communication, November 11, 2010).

There was also a demand for school-based provision. TreeHouse, the first ABA school in the UK opened its doors in 1997. As of March 2010, there were 14 self-identified ABA schools for children with autism that catered for almost 250 children ranging in age from 3 to 18 years, employing 310 ABA staff (Griffith, Fletcher, & Hastings, 2012). That increase in demand, based on strong research evidence to support the effectiveness of ABA with children with autism (Eldevik et al., 2010, 2009) also led to a growth in the number of people working on ABA programmes and seeking the training and professional development necessary to become ABA practitioners. Because of a lack of UK-based resources, early programmes were typically established with consultation from abroad, mostly Norway and the USA where home-based ABA programmes were more established. In 2000, there were no certified behaviour analysts in Europe and no courses that were approved by the Behavior Analyst Certification Board (BACB) as providing the coursework content

eligibility (Hughes & Shook, 2007). As of March 2011, there were 99 Board Certified Behavior Analysts (BCBA) or Board Certified assistant Behavior Analyst (BCaBA) certificants<sup>3</sup>, across the UK as follows: England 72; Northern Ireland 11, Scotland 4; and Wales 12. There were also four approved BACB courses at Bangor, Cardiff, Ulster, and Kent universities operating (see bacb.com for more information about the BACB and the certification of behaviour analysts). The first UK-based international conference in ABA and autism was held in Northern Ireland in 2000. There have been three similar conferences since in 2004, 2005, and 2009. The Experimental Analysis of Behaviour Group (EABG), originally established in 1963 to promote collaboration between behaviour analysts working in universities across Europe, now includes behaviour analysts working in applied settings across the UK and holds biennial conferences to disseminate and discuss research in both Experimental and Applied Behaviour Analysis (Hughes, 2007).

Accompanying these developments has been an increasing acknowledgement that there is additional work needed to specifically address the establishment of ABA as a profession in the UK context. ABA was, and still is, both misunderstood and misrepresented by other professions and organisations including the British Psychological Society (Keenan, 2010). Additionally, much of the delivery of ABA provision for children with autism is carried out by tutors /therapists for whom there is no BACB certification. There is also recognition that, although the increase in demand for ABA has been from parents with children with autism, ABA is not autism specific (Chiesa, 2005). Furthermore, practitioners need an understanding of autism education in the nation within which they practice, as well as a sound knowledge of ABA. Education policy and practice in England, Northern Ireland, Scotland, and Wales is governed at a national level and is therefore not identical across the UK.

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<sup>3</sup> Data from BACB website March 2011

In December 2004, a workshop organised by TreeHouse<sup>4</sup>, the Parents Autism Campaign for Education (PACE)<sup>5</sup> and Peach, was held to consult with professionals in the field of autism and to gather ideas about an accreditation and career path for autism ABA practitioners (TreeHouse, 2005). A series of stakeholder conferences and steering group discussions followed over the next two and a half years. There was clear agreement about a set of overlapping and inter-related issues that required collaborative action: the credibility and recognition of ABA and of its practitioners, the recruitment and retention of tutors/therapists, the lack of a recognised qualification or even approved coursework at ABA tutor/therapist level (the front-end delivery of most ABA services), and a lack of career infrastructure and associated pay scales. Perhaps not surprisingly, the lack of a systematic infrastructure with respect to ABA in the UK translated into claims of inconsistent practice. For example, in a survey of UK service providers, Martin (2008) highlighted a number of issues with ABA practices in the UK. These included: inconsistencies in the use of terminology, descriptors, and curricula; the nature and frequency of assessments and data collection; the intensity of provision; and the structure and delivery of training and supervision.

Despite the clear agreement on the issues for collaborative action at initial UK stakeholder meetings, there was little clarity on the process of addressing these points. As noted above it was agreed that ABA practice in the field of *autism education* would be an immediate focus. The stakeholder recommendations were also clear that there would be no attempt to set up a “rival” UK version of the BACB and the BCBA or BCaBA credentials. Rather, compatibility with BACB standards and credentials would be an important guiding principle. This makes sense not only from a “why re-invent the wheel” point of view, but

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<sup>4</sup> TreeHouse was rebranded Ambitious about Autism, the national charity for children and young people with autism, in February 2011.

<sup>5</sup> Parents Autism Campaign for Education (PACE) merged with TreeHouse in 2005.

also because the BCBA-D, BCBA, and BCaBA credentials are increasingly internationally recognised, certainly from within the field of behaviour analysis (Arntzen, Hughes, Pello, & Moderato, 2009; Hughes & Shook, 2007; Shook & Favell, 2008). The UK stakeholder conference in 2007 proposed to build upon the work on competencies done by other professionals as well as the BACB through the development of a shared competencies framework for practitioners in the UK working with children with autism using the principles of ABA.

### **The Aims of Competence Frameworks**

The growth of competence frameworks internationally in the last three decades has been rapid and widespread: geographically, by industry sector, and increasingly, by profession. The first published article to refer to “competency – based” practice was by McClelland in 1973 who proposed that competence, rather than intelligence, was a better indicator of management performance (and see, Boyatzis, 2008). Early use of competence frameworks was aimed at identifying excellent performers, facilitating training, and benchmarking pay scales. Increasingly, however, competence frameworks are being used to achieve a high level of consistency when measuring the quality of service provided, assessing performance, as well as providing a basis of common language both within a profession and for its external audience. Today, competencies are used in “almost every organisation with more than 300 people”, (Boyatzis, p.5) and this includes both the private and public sectors. In 2007, the UK Chartered Institute of Personnel and Development (CIPD) conducted a survey of UK employers aimed at charting employers’ use of competence frameworks across sectors. The CIPD Annual Survey Report (Learning and Development, 2007) states that 60% of respondents had a competence framework in place for their employees. Of the 40% that

did not, almost half (48%) had plans to develop one. Those that had no plans were predominantly private sector employers with fewer than 250 employees.

### **The UK ABA Autism Education Competencies Project**

The UK ABA Autism Education Competencies Project was launched in February 2009 by TreeHouse and other key stakeholders. The primary goal of the project is to establish a shared competence framework for practitioners in the UK working with children with autism using the principles of ABA. The project also aims to set up a system that will support the provision of appropriate training, supervision and assessment for delivering qualifications against the competence framework, and ultimately to establish an accredited UK ABA qualification at tutor/therapist level. The objective is to ensure that this qualification maps onto both the Qualifications and Credit Framework in the UK, but also onto existing international qualifications and guidelines (e.g., BACB certification). Although there is no qualification at tutor/therapist level at present, and no BACB approved course sequence at that level, individual provider organisations are providing in-house training, much of which maps onto the BACB task list and is of high quality. A further aim of the project is, therefore, to establish accreditation of the in-house training that is offered by current service providers (on home programmes and in school settings). A secondary but equally important goal is the dissemination and implementation of the project's work throughout the community of ABA practitioners in the field of autism education in the UK.

Fulfilling these objectives should ensure progress on a number of important fronts: more children and young people with autism will benefit from high-quality, evidence-based education delivered by competent professionals; practitioners will benefit from professional development and occupational standards; parents and children's services departments will be able to employ practitioners with a greater degree of certainty about competence and quality;

and education providers and the academic community will have a greater understanding of the nature and use of ABA in educational practice for children with autism.

In the remainder of this paper, I describe the process employed to define the scope and structure of a competence framework appropriate for the field of ABA, specifically focused on autism education in the UK. This process included an overview of the concept of competencies and competence frameworks across professions, and an analysis of the common and critical features of selected competence frameworks within health and education in the UK and in the field of autism. The aim of this analysis was to identify the defining features of competencies frameworks that have been used by other professions and in particular, to choose those features most appropriate to the practice of ABA and which best addressed the project objectives. These features were then mapped onto measurement tools typically used in ABA settings as well as the BACB task list to ensure professional as well as geographical consistency. Three questions were posed: 1. How are competencies defined? 2. How are competence frameworks structured? 3. What key features do competence frameworks include? The conclusions from the examination of these three questions were then used to discuss a fourth question: 4. Which definitions, structures, and common features are most relevant to ABA and autism? The paper concludes with an outline of the proposed UK ABA Autism Education Competence Framework.

### **Review of Existing UK Competence Frameworks**

A review of existing frameworks across health, education in use in the UK, and in the field of autism was conducted. These were identified by asking the ABA Autism Education Competencies Project Advisory Group members, and other stakeholders and professionals working in ABA settings, including teachers and Speech and Language Therapists, for

examples of competence frameworks used in their settings and by reviewing the websites of professional bodies in health and education in the UK. Health and education were chosen because home and school based autism provision in the UK is predominantly through education with specialist health professionals' involvement on a needs basis. Social care professionals are not typically involved in the delivery of ABA programmes for children with autism in the UK. The list of competence frameworks examined is not exhaustive but reflects those frameworks deemed by the Advisory Group to be relevant to the aims of the project. Tables 1 and 2 list the frameworks examined.

Each of the frameworks was analysed in terms of their definition of competencies, how they were structured, and the key features incorporated in the frameworks both in terms of use and presentation. In terms of use, common key features examined included use of specific measurement tools, professional development, links to specific curricula/training courses, and accreditation of those curricula or training courses. In terms of presentation, key features included availability on websites, hard copies, and additional information such as glossaries and references. A similar exercise was conducted for the materials currently in use across ABA service providers internationally.

Table 1: *Competence Frameworks/Guidelines reviewed in Autism*

<b>Sector</b>	<b>Institute</b>	<b>Competence Framework/Guidelines</b>
	BACB	Autism Task List
<b>Autism</b>	New York State Education Department	Autism Programme Quality Indicators
	West Midlands Regional Partnership	Autism Spectrum Disorder Training Policy and Framework

Table 2: *Competence Frameworks/Guidelines reviewed in Health and Education in the UK*

<b>Sector</b>	<b>Institute</b>	<b>Competence Framework/Guidelines</b>
<b>Health</b>	Royal College of Psychiatrists	A Competency Curriculum for Specialist Training in Psychiatry
	IAPT <sup>1</sup>	CBT <sup>2</sup> Competencies for people with anxiety and/or depression disorders
	Royal College of Speech and Language Therapists	The Speech, Language and Communication Competence Framework
	British Psychological Society	National Occupational Standards for Psychology
	Skills for Health	Competence based approach to service delivery
<b>Education</b>	Children's Workforce Development Council	Common Core of Skills and Knowledge for the Children's Workforce
	Skills for Business	National Occupation Standards (various)
	Training and Development Agency	Professional Standards for qualified teacher (QTs) status
		Professional Standards for Higher level teaching assistant (HLTA) status
		National occupational standards for supporting teaching and learning (STL)

<sup>1</sup> Improving Access to Psychological Therapies

<sup>2</sup> Cognitive Behavioural Therapy

Table 3 lists the ABA service providers reviewed and deemed as a reasonably representative sample by the Advisory Group. Although none of the service providers reviewed have competence frameworks in place, all had elements that might be included in such a framework including assessment tools, key skills areas identified for training purposes, and/or agreed service standards. To propose the scope and structure of a competence



framework of direct relevance to ABA and autism in the UK, these common elements were identified and mapped onto the findings of the review of competence frameworks.

Table 3: *Materials from ABA Service providers examined*

<b>Institute</b>	<b>Competence Framework/Guidelines</b>
BACB	ABA Task List
York University, Canada	The York Measure of Quality of Intensive Behavioural Intervention
Ontario Pre-School Initiative	Competence check lists
UK Young Autism Project	Training materials, in-house service standards and tutor assessments
Peach	Training materials, in-house service standards, tutor assessments and tutor record of experience
Jigsaw School	CABAS service standards, training programme and TPRA
Westwood School, Wales	Training materials, mainstream inclusion policy and Tutor Assessment Tool
TreeHouse School	Training materials, in-house service standards and tutor assessments
Southampton Childhood Autism Programme (SCAmP)	Training materials, code of practice and Tutor Assessment Tool

### **How are Competencies Defined?**

Definitions of “competence”, “competencies”, or “competency” vary. One of the first uses of the term “competence” was in a legal context, used to determine an individual’s ability to give evidence. In clinical psychology “competency” then came to refer to legal standards of mental capacity and awareness. The vocational counselling professions adopted the term in relation to their practices defining competencies as “broad areas of knowledge, skills and abilities linked to specific occupations” (Schippmann et al., 2000, p. 707). In education, the term was also used but with the emphasis on knowledge. Early industrial

psychology defined competence as the characteristics shown by successful individuals (Schippmann et al.).

Today there is no single definition of the term “competencies”. The Job Analysis and Competency Modelling Task Force (JACMTF) commissioned by the Society for Industrial and Organisational Psychology (SIOP) in 1997, asked 37 experts in the development and use of competencies models for their definitions. They received a number of different answers including, from one, “I can’t” (Schippmann et al., 2000). The lack of consistency is a reflection of a number of factors including: perspective, purpose, the role of governments, and culture.

McLagan (1996) (as cited in Schippmann et al, 2000) outlines two ways of defining competencies. First, the differential psychology approach places an emphasis on individual differences with a corresponding focus on individuals’ abilities (including intellect) and attributes. Second, the educational/behavioural approach focuses on performance outcomes and behaviours reflecting the view that behaviours can be changed.

Competencies have also been defined according to purpose. Garavan and McGuire (2001) suggest that competencies are differentially defined as characteristics of the individual, characteristics of an organisation or profession, and as a ‘mode of discourse between education and the labour market’ (p. 148). Within this classification structure, most of the literature treats competencies as the characteristics of the individual. This stems from a desire within an increasingly competitive market to understand the basis of excellence in an employee context: that is, identifying and developing the most “competent” performers. The models that focus on the individual tend to emphasise attribute based competencies (Boyatzis, 1982, 2008; Rausch, Sherman & Washbush, 2002) of an organisation initially focused on the identification of “core competencies” that give an organisation strategic competitive advantage (Hamel & Prahalad, 1993, as cited in Garavan & McGuire, 2001).

Increasingly, competencies are being used to define the distinguishing characteristic of a profession and the contribution that the profession makes to specific subjects of enquiry. The focus of this tends to be on skills and knowledge. Boon and Van der Klink (2001) (as cited in Garavan & McGuire) proposed that, in addition, there is increasing recognition of the value of competencies in relation to workplace learning: their use allows learning provision to match with service delivery, and also leads to better identification of learning needs. Added to this is an increase in the mobility of employees and a demand that competencies be recognised through certification processes.

The role of governments has had a defining impact on competencies (Horton, 2000). Having national competence standards is seen as a means of increasing economic competitiveness. The US National Skills Standards Board (NSSB) was set up in 1994 with a view to setting out national standards across all occupations. The goal is that these are then assessed and certified. It is anticipated that this will be in place in 2013. In the UK, the key driver was concern over a growing skills gap and poor quality vocational training. The National Council for Vocational Qualifications (NCVQ) was established to co-ordinate a national framework of performance standards, broadly outcomes based, against which a qualifications framework could be developed. This has led to the establishment of National Occupation Standards (NOS) and an accompanying set of National Vocational Qualifications (NVQ).

Garavan and McGuire (2001) suggest that there are also cultural differences in the definition of competencies. In the USA, the focus is on competencies related to the individual and in particular the knowledge and skills required of an excellent performer. Accordingly, there is an emphasis on cognitive aspects of learning. In the UK there is less focus on individual excellence and more on task completion. The emphasis is on standards of job functions and work based aspects of learning, and competencies are based on the attitudes of

individuals. In Germany, the approach is based on the capacity of individuals to perform a function or profession and, therefore, on qualifications and certification.

Holmes (1992) suggests that many of the attempts to define competencies do so on the assumption that competence is an entity and is therefore 'observable and measurable' (p. 4). He argues however that competence is not an entity. It is a concept, difficult to define and extremely complex, and that rather than the factors of perspective, purpose, the role of governments, and culture described above, competence should be viewed as a multi-faceted set of personal, social, and technical factors. He points out that an underlying assumption of many models of competencies is that competence defines performance or is a predictor of performance when in fact individuals may be competent, but many other factors may affect performance. Holmes distinguishes between a "Job approach" to competencies which identifies observable activities which are performed; a "Role or Social approach" which considers work performance in terms of the interactions of the role and those with whom the incumbent relates including perceptions and expectations; and a "Personal or Biographical approach" which looks at the evolving competencies of an individual as he or she progresses through an organisation and changing roles.

Interestingly I could find no clear behaviour analytic definition of the term competencies. Much of the behaviour analysis literature surrounding the professional credentials of behaviour analysis refers to, but does not specifically define, competencies. The identification of "competencies" are part of the job analysis process described by Shook, Johnston, and Mellichamp (2004) that was conducted by the BACB and used to determine the certification task standards and the content of the BACB credentialing examination. Indeed, the BACB task lists (all editions) have all been based on "the importance of each of more than 100 competencies to the practice of behavior analysis" (Shook & Favell, 1996, p. 224), originally used by the Florida Department of Business and Professional Regulation to

determine the content area for the 1994 Florida Behaviour analysis Certification Examination. To derive those “competencies”, a set of task statements relating to broad content areas were first defined. Those task statements were classified into specific knowledge, skill and ability statements and included in the task list without retaining that distinction (Shook, Johnston, & Mellichamp, 2004).

The review of competencies frameworks across health and education in the UK, and autism in the UK and the US, reflected some of the different ways that competencies have been defined. Of the seven health frameworks reviewed, three are specifically described as competence frameworks, while the other four are based on National Occupation Standards. Of the six education frameworks reviewed, two most closely resemble competence frameworks, while the other four are based on National Occupation Standards. Of the autism frameworks reviewed, only one was a true competencies framework. Table 4 represents the variety of ways in which competencies are conceptualised. Two common definitions of competencies predominate. The “Knowledge, Skills, and Attributes” definition is used by two of the three health competence frameworks, and by the Training and Development Agency: Professional Standards for Teachers. The National Occupation Standards use Performance Criteria (outcomes, broadly defined behaviours) and Knowledge. The autism competence framework defined competencies as Skills and Knowledge, and The Speech, Language and Communication Competence Framework defines uses “Competence” and “Indicator of Competence” – broadly Knowledge and Outcome.

Table 4: *Defining Competencies*

<b>Differential Psychology</b>		<b>Educational/behavioural</b>	
←		→	
<i>Definitions</i>			
<b>Knowledge, Skills Attributes/Attitudes</b>	<b>Knowledge Skills</b>	<b>Performance Criteria Knowledge &amp; understanding</b>	<b>Competence &amp; indicator of competence</b>
A Competency Curriculum for Specialist Training in Psychiatry	Common Core of Skills and Knowledge for the Children's Workforce	National Occupational Standards (all)	The Speech, Language and Communication Competence Framework
CBT Competencies for people with anxiety and/or depression disorders	Autism Spectrum Disorder Training Policy and Framework		
Professional Standards for qualified teacher (QTS) status & Higher level teaching assistant (HLTA) status			

### **How are Competence Frameworks Structured?**

Not only is there a broad range of definitions of competencies, the same is true of the definition and structure of competencies frameworks. Models reflect the purpose of the framework: some are based on clusters of competencies within a defined profession or organisation, whilst others are based on providing a career structure in terms of defining increasing levels of competence. The Kioto People Management Model (Devisch, 1998), an example of a model based on clusters, proposes three levels of competencies: Core, Functional, and Specific. Core competencies reflect the corporate culture of the organisation,

Functional competencies are linked to job roles and their interaction within the organisation, and Specific competencies outline the attributes required by individuals to perform their role.

The Dreyfus and Dreyfus (1986) “Novice to Expert” model is an example of an approach used to structure frameworks where the emphasis is on supporting progress in the development of skills or competencies. It also provides a means of assessing these progressive levels of competence. The model describes five levels of increasing competence: *novice*, *beginner*, *competent*, *proficient*, and *expert*. These levels are each defined in terms of five areas of competence: knowledge, standard of work, autonomy, coping with complexity, and perception of context (taking a task-based as opposed to a holistic approach to problems). Taking autonomy as an example, a *novice* is described as someone needing close supervision or instruction; a *beginner* as one able to achieve some steps using his or her own judgement but needing supervision for the overall task; a *competent* worker as one able to use his or her own judgement for most tasks; a *proficient* worker as one able to take full responsibility for his or her own work and supervise others; and an *expert* as one able to take responsibility beyond his or her specific remit.

The structure of the frameworks (where relevant) examined in the review reflected two approaches. Those frameworks relating to professions (e.g., the Professional Standards for Teachers and the Speech, Language and Communication Competence Framework) followed the progressive career structure model. Those based on specific subject areas (e.g., the Cognitive Behaviour Therapy Competencies for people with anxiety and/or depression disorders) reflected the “cluster” of competencies model. Table 5 summarises the structure of competence frameworks.

Table 5: *Structure of Competencies Frameworks*

<b>Clusters of competencies</b>	<b>Progressive career structure</b>
A Competency Curriculum for Specialist Training in Psychiatry	The Speech, Language and Communication Competence Framework
CBT Competencies for people with anxiety and/or depression disorders	Autism Spectrum Disorder Training Policy and Framework
Common Core of Skills and Knowledge for the Children's Workforce	Professional Standards for qualified teacher (QTS) status & Higher level teaching assistant (HLTA) status
National Occupational Standards (all)	

Table 6: *Common features of frameworks*

<b>Features</b>	<b>Health</b>	<b>Education</b>	<b>Autism</b>	<b>ABA</b>
Measurement tools/system	Work based assessment for NOS	Work based assessment for NOS		All providers use assessment tools
Self Assessment tool	The Speech, Language and Communication Competence Framework		Autism Programme Quality Indicators (for providers)	
Linked to specific curriculum/training course	A Competency Curriculum for Specialist Training in Psychiatry	All NOS linked to NVQs		All providers course content consistent with BACB task list
	All NOS linked to NVQs			
Website	All	All		



### **What Key Features do Competence Frameworks Include?**

In the review, I also sought to identify key features of competence frameworks. Here too I found a lack of consistency. Features identified included: measurement tools, self-assessment tools, links to curricula, accreditation of curricula, links to qualifications, continuous professional development, a website, glossaries, and references. Particularly interesting was the lack of measurement tools, although the assessment inherent in NVQs is such that the NOS-based competencies are assessed by some means. Table 6 summarises common features of frameworks.

### **Defining a UK ABA Autism Education Competence Framework**

#### **Which Definitions, Structures, and Common Features are Most Relevant to ABA and Autism?**

For the purposes of the UK ABA Autism Education Competence Framework, the definition of competencies according to the educational/behavioural model McLagan (1996) is most in keeping with the dimensions of ABA (Baer, Wolf, & Risley, 1968). Behaviours can indeed be changed, and of interest in terms of best practice is what people actually do. At the same time, because of the desire to develop a set of qualifications that map onto the UK Qualifications and Credit Framework, and in particular to establish in future a UK recognised qualification such as the NVQ or its equivalent, it makes sense to broadly follow the NOS definition of competencies. Using “Knowledge” and “Demonstrable Behaviour” would be compatible with an education/behavioural model and the NOS model. The ABA profession, for associate behaviour analysts and higher, already has a defined content in terms of Knowledge by dint of the BACB Task List (3rd Edition, 2006) and, as discussed above, the task list reflects knowledge, skills, and ability. What is critical is to ensure that the

competencies included in the framework under “Demonstrable Behaviour” can be observed so that they can be measured and evaluated. Demonstrable behaviours, therefore, need to be of a form that will allow observation and measurement either directly or with some further definition.

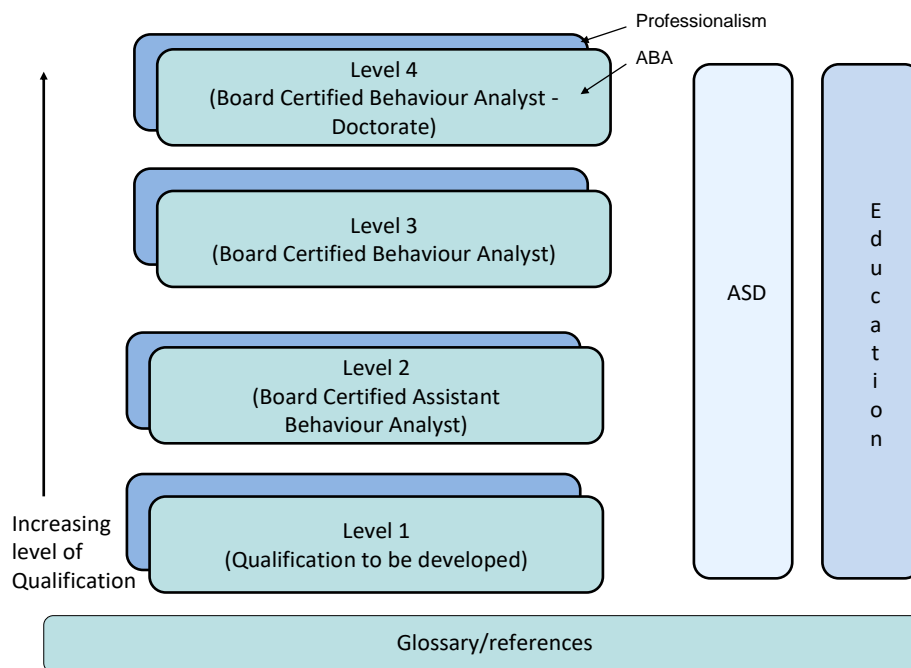
In terms of structure, the original discussions surrounding the competencies framework outlined a vision “to set up a framework which is ‘cradle to grave’ in terms of ABA career” (TreeHouse, 2007, p 2). The Dreyfus and Dreyfus (1998) model of skill acquisition most closely meets this aspiration and was therefore likely to be the most appropriate way of structuring the proposed framework. The BCBA-D, BCBA, and BCaBA credentials probably map most closely onto the expert, competent, and proficient levels, respectively, as described in the Dreyfus and Dreyfus model – what is clear is the gap at the novice and beginner practitioner levels. These levels are of particular interest as there are more tutors/therapists working on school and home programmes than supervisors, consultants, or senior Behaviour Analysts (e.g., Griffith et al., 2012) and yet there is no formalised training or qualification recognised throughout the UK for this group of practitioners. Although the Dreyfus and Dreyfus model clearly maps onto the ABA Competencies project objectives, the idea of “clusters” of competencies, particularly in terms of subject areas is also relevant. The main objective of the project is to *establish a shared competencies framework for practitioners in the UK working with children with autism using the principles of ABA*. Yet the current training and certification in ABA that exists at BCaBA level and above is not autism, nor children, nor UK-specific. Furthermore, whilst at the time of the original stakeholder conferences the fastest growth in demand for ABA services was arguably from parents of children with autism, this may no longer be the case. There is evidence of increasing demand for services for adults with intellectual disabilities and challenging behaviour (Emerson & Hatton, 2008). Whilst the ABA competencies required

across settings and populations are clearly generic, additional competencies specifically related to those settings and populations are also desirable. The idea of having both content specific (autism and education) and generic competencies (ABA) is therefore relevant. It is also appropriate to note that one of the anticipated outcomes of the project is a better understanding of ABA: the use of generic competencies for ABA may address the widely held misconception that ABA is an autism-specific intervention (Chiesa, 2005). It was also clear from interviews with ABA providers as well as from the review of other frameworks, and in particular the certification processes used by other professions, that a list of competencies does not in itself lead to best practice. As Holmes (1992) suggests, there are many factors that affect performance. A key component of any proposed framework should therefore be those additional competencies needed to maintain a professional infrastructure including its code of responsible conduct, and also ethical guidelines.

### **Proposed Competence Framework for ABA and Autism in the UK**

Drawing upon the examination of existing frameworks and relating those to the practice of ABA, the following structure is guiding our project work. The working model for our competence framework is in two parts: 1. A “core” framework (Figure 1) that covers the profession of ABA from Level 1 (ABA tutor/therapist) through to Level 4 (BCBA-D) working within an education setting, and 2. A set of “foundation” competencies that would be expected of non-ABA practitioners working in an ABA education setting irrespective of role/level. The key features of the “Core” part of our working model are that at each level of the framework there are four content strands: ABA, Professionalism, Autism, and Education. The relative emphasis of each will vary by level and they will be broadly generic. Competencies in each strand are defined in terms of “knowledge” and “demonstrable

behaviours”. The opportunity exists for other settings or population strands to be developed in the future.



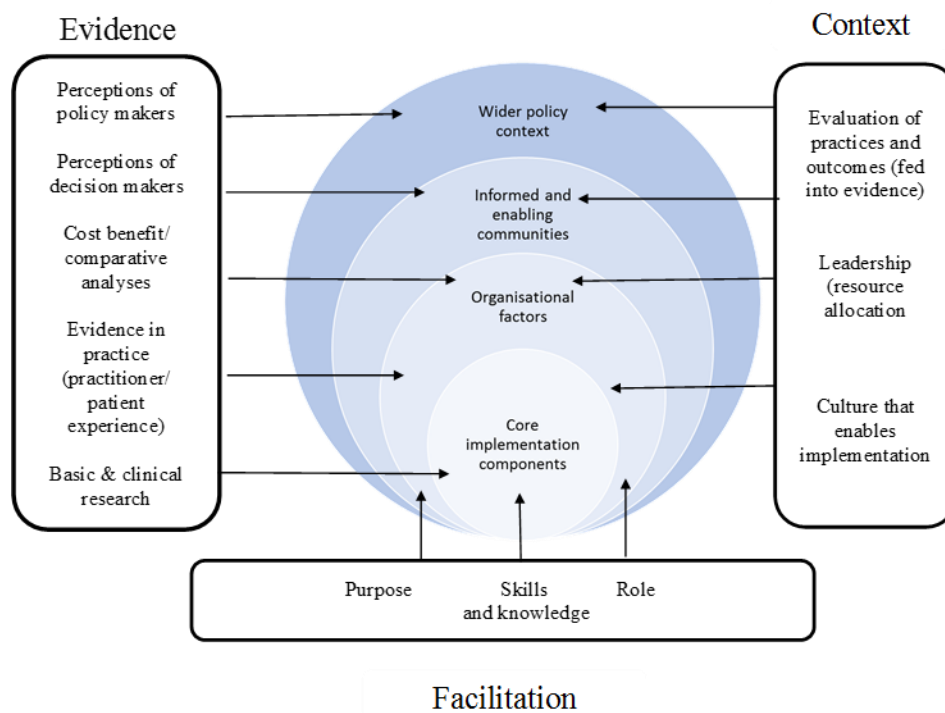
*Figure 1:* The core professional framework for practitioners working with children with autism using ABA

ABA competencies, qualifications, and professional certification at Levels 2 to 4 will be defined for practitioners in the UK by the international standards established by the BACB. ABA competencies developed at Level 1 will be informed by the BACB Task List 3rd Edition (and in the near future by Task List 4th Edition), employers and supervisors of, and individuals working in roles typically called ABA tutor or ABA therapist, and will detail all of the competencies that a practitioner needs to know, and to be able to show, to deliver current best practice. Competencies relating to the professional practice of ABA in a UK setting, autism competencies, and UK education competencies will be integrated with BACB requirements to define Levels 1 to 4 of the Framework in full.

The “Foundation” level of ABA competencies will be developed for those who may not wish to develop a career as a behaviour analyst in autism but may be interested in learning more about ABA, working to support the delivery of an ABA-based educational model, or working in another professional role in an ABA setting.

I am currently working with ABA and autism stakeholders in the UK to develop the detail of the proposed framework. The focus to begin with is on the development of ABA competencies at Level 1 – the tutor/ therapist level – as there is currently nothing in place at this level that is shared across the UK. We are also developing the associated Level 1 competencies in autism and education that whilst initially focused on Level 1 will form the basis of autism and education competencies for other Levels of the framework. Defining competencies is only part of the process: ensuring that they translate into best practice will be the real test of whether the project objectives are realised.

### Chapter 3: Assessing Competencies in Applied Behaviour Analysis Skills for Tutors working with Children with Autism in a School-based Setting<sup>6</sup>



Chapter 2 proposed a competence framework appropriate for the field of ABA, specifically focused on autism education in the UK. It is recognised that the development of a competence framework does not result in best outcomes without proactive work designed to embed competencies into organisational practices - the second factor of evidence-based practice identified by Fixsen et al., (2005). Chapter 3 focuses on an example of a practical application of the UK ABA Autism Education Competence Framework Level 1 (2011) – identifying ways of measuring staff competence.

<sup>6</sup> A version of this chapter has been published as Denne, L.D., Thomas, E.R., Hastings, R., Hughes, J.C. (2015) Assessing Competencies in Applied Behavior Analysis for Tutors working with Children with Autism in a School-based Setting. *Research in Autism Spectrum Disorders*. 20, 67-77.

### **Abstract**

With an increase in large scale Applied Behaviour Analysis (ABA) services for children with autism, the need to define and measure quality is essential. Staff competence is key and identifying and measuring this accurately is critical. ABA service providers typically measure competence by direct observation, video analysis, and written examination. However, apart from the York Measure of Quality of Intensive Behavioural Intervention (YMQI) there is an interesting lack of direct links between defining competencies and developing assessment tools. In this study we used three measures of competencies developed from the UK ABA Autism Education Competence Framework Level 1. Along with the YMQI we assessed their construct validity by comparing the performance of two groups of tutors working in a school for children with autism ("experienced" vs. "inexperienced") and performance of the "inexperienced" group at baseline (T1) and following one year of competence based training (T2). Results revealed that the more experienced group in both the between-group and longitudinal comparisons achieved higher scores supporting the construct validity of the measures. There were few associations between the different methods of assessing competence, suggesting that no measure should be used in isolation if competence is to be comprehensively assessed.

## Introduction

Behavioural interventions are increasingly acknowledged as an effective way of working with, and educating, individuals with autism. There is evidence for the effectiveness of early intensive behavioural interventions (EIBI) (Dawson et al., 2009; Eldevik et al., 2012), and of comprehensive ABA based intervention for older children in home (Eldevik et al., 2009) and school settings (Grindle et al., 2012). However, whilst many have benefitted from behavioural interventions, individual child outcomes vary (Remington et al., 2007; Howlin, Magiati & Charman, 2009; Whiteford et al., 2012) and this is the case within, as well as across studies. Perry and Freeman (1996) suggest that individual outcome is a result of child, family and intervention variables. For example, child age, IQ, adaptive scores and severity of autism (Perry et al., 2011) and intensity of supervision (Eikeseth, Hayward, Gale, Gitlesen, & Eldevik, 2009), have all been shown to be predictive of outcomes. Intervention variables include both quantity and quality. Much research has focused on the quantity of intervention, both in terms of intensity and duration (Lovaas, 1987; Sheinkopf & Siegel, 1988; Luiselli et al., 2000). Research into the quality of intervention is, however, less common. In other fields, for example substance abuse, there is considerable research into the link between quality, often defined as treatment fidelity, and outcomes (Gearing et al., 2011). With the growth in demand for ABA provision and the possibility that quality of provision may vary across services, it has become increasingly important to define exactly what quality means and how it should be evaluated.

What is good quality ABA? Perry et al., (2008) suggest factors that contribute to the quality of intervention include the quality of teaching, programming, and of the provider organization. Research into the quality of teaching within the field of behaviour analysis has tended to focus on the intensity of supervision (Eikeseth et al., 2009), methods of staff training (Weinkauff, Zeug, Anderson, & Rosales, 2011; Smith, Parker, Taubman & Lovaas,



1992), and treatment fidelity (Neef, 1995; Klintwall, Gillberg, Bölte, & Fernell, 2012). These foci are perhaps not surprising given the characteristics of service provision where typically much of the front end delivery of services comes from “Behavioural Technicians” (in the UK more often referred to as ABA “tutors” or “therapists”), as part of a tiered service delivery model in which a Behaviour Analyst designs and supervises service provision (BACB, 2012). However, with a growth in large-scale delivery of ABA provision it may not be possible to ensure quality at the point of delivery just by focusing on these areas alone.

Growth in ABA service delivery is beginning to happen internationally. In Canada for example there has been an increase in EIBI as the publically funded intervention of choice for autism (Norris, Paré & Starky, 2006); ABA has been endorsed in the United States by a number of state and federal agencies, including the U.S. Surgeon General and the New York State Department of Health ([www.autismspeaks.org](http://www.autismspeaks.org)); and the UK has seen the establishment of at least 14 ABA schools or classes (with ABA provisions) for children with autism (Griffith, Fletcher, & Hastings, 2012). One issue with larger scale service delivery is how to ensure staff competence so that quality and, therefore, the chance of good outcomes is maximised. Being able to identify and measure tutor competence accurately is a critical aspect of service delivery and is also important for future research.

Defining required staff competencies is a first step in the identification and measurement of staff competence. The Behavior Analyst Certification Board (BACB®) has, through its task lists, developed generic behaviour analysis competencies for certification purposes at technician, graduate, post-graduate and doctoral level (BACB® 4<sup>th</sup> edition Task List, 2012; BACB™ Registered Behavior Technician (RBT™) Task List, 2013). Many provider organizations have developed checklists of competencies for internal purposes such as the Carbone Clinic’s “Effective Teaching Procedures Evaluation Form” which includes six

evaluation areas: Organisation, Instructional Delivery, Error Correction, Reinforcement, Behaviour Management, and Data Collection, (Carbone et al., 2014).

As far as we are aware, the UK ABA Autism Education Competence Framework Level 1 (2011) (Appendix B) is the first nationally developed peer reviewed list of the competencies required at the point of delivery of ABA services, (i.e., for front-line staff) in autism education (Chapter 2). 19 organisations and 81 individuals from the UK ABA community contributed to its development; 9 organisations and 34 individuals were involved in its evaluation; and the 5 universities in the UK with BACB® approved course sequences participated in its editing. The framework consists of four competence domains: ABA, Education, Professionalism, and Autism, with the ABA content closely mapped on to the BACB® 3rd edition Task List. The UK framework defines competencies in terms of knowledge (the things that a behaviour technician/tutor needs to know) and demonstrable behaviour (the observable skills they need to be able to show, operationally defined) specifically for those working in the front-line delivery of services. This was thought necessary because at the time of its development the BACB had not yet established the RBT certification and there was nothing in place for what the framework identifies as “Level 1” practitioners; those responsible for the delivery of ABA services who had either not had the opportunity or had chosen not to pursue BCaBA or BCBA certification (levels 2 and 3). An excerpt from the competence framework is shown in Table 1.

**Table 1:** *Excerpt from the UK ABA Autism Education Competence Framework Level 1 (2011)*

<u>Establishing and choosing reinforcers</u>			
K.50	You know it is important to sample a wide range of potential reinforcers across a variety of different sensory modalities (e.g., tactile – hugs, tickling, heavy blanket; vestibular – rocking, swings; auditory – music, singing; gustatory – sweets, crisps; visual – lights, different colours).	D.29	You create opportunities for the learner to sample multiple potential reinforcers by providing items/activities on a non-contingent basis (i.e. items, activities, attention or downtime given to the learner that is not dependent on a specified response).
K.51	You know the importance of continuously establishing new reinforcers (i.e., because a learner's interests can be transient and satiation may come into play).	D.30	You identify and use a variety of potential reinforcers for learners
K.52	You know how to pair established reinforcers with other items/activities/people to increase the range of potential reinforcers available.	D.31	You increase the range of potential reinforcers through pairing items/activities with established reinforcers as specified in the intervention/programme.
K.53	You know that activities learners engage in during their free time may be used as reinforcers because they are likely to be preferred activities. Such activities may include aspects of stereotypic/repetitive behaviour.	D.32	You choose a learner's high preference items or activities as potential reinforcers during teaching.
		D.33	You choose as potential reinforcers items or activities that appear to have the same function as a learner's preferred items or activities.

Having an agreed list of competencies and developing training against those competencies does not, however, necessarily lead to improved performance. As with any behaviour change programme, service providers need to be able to evaluate and measure the effectiveness of competence based training and use these data to drive the decision-making process. Fixsen and Blase (1993) suggest that establishing an, “integrated system of discovery, training, consultation, evaluation and administrative support is key to effective programme dissemination” (p. 603).

Within the field of behaviour analysis there is some literature on measuring and maintaining staff performance. Approaches to assessment include one-off, periodic or

continuous assessment and all may involve one or more of the following: direct observation, video observation and written examination. An early study conducted by Koegel, Russo, and Rincover (1977) for example, using direct observation, provided empirical evidence of assessing staff competencies and the effectiveness of Discrete Trial Training (DTT) following staff training. The assessment measure involved at least one observer who recorded data on the teacher's use of five aspects of behavioural intervention procedures during each session: using operational definitions (e.g., Discriminative Stimulus ( $S^D$ s), prompts, shaping, consequences and discrete trials). The correct use of DTT increased following training, with a range of 90% to 100% accuracy.

Davies, Smith and Donahoe (2002) used a combination of direct and video observation and written examination to measure staff competencies. They investigated the validity of measures for supervisors' competencies in providing EIBI for children with autism by comparing the mean scores of 26 supervisors with 22 therapists on four measures: examination on instructional programmes, behaviour observation of participants' therapy, written examination, and videotape critique of others' therapy. The results showed that the measures were valid, and supervisors scored significantly higher compared with the therapists on all measures. The examination on instructional programmes was found to be the most accurate and useful measure.

Continuous staff assessment is a core component of the Comprehensive Application of Behavior Analysis to Schooling (CABAS<sup>®</sup>) model, which applies behaviour analysis to all school roles, and an organizational behaviour management approach to school supervision and administration (Selinske et al., 1991, pgs. 107-108). Staff performance is measured by the Teacher Performance Rate and Accuracy Scale (TPRA) which records the number of correctly delivered, "learn units" by a teacher within a given time frame, in which learn units are described as measuring the, "occurrence of antecedents, behaviours and consequences for

both teachers and students during instruction.” (Ross, Singer-Dudek & Greer, 2005, pg. 413). TPRA observations are conducted for all teaching staff by trained supervisors on a weekly basis and research has shown a correlational relationship between teacher performance, the number of learning opportunities presented to each pupil and the number of correct pupil responses (Ingham & Greer, 1992).

Overall within the field of ABA, there is a lack of direct links between defining competencies and developing competencies assessment tools. The exception to this is in the area of assessing tutors’ performance in the delivery of DTT. The Discrete Trials Teaching Evaluation Form (DTTEF) developed by Fazzio, Arnal and Martin (2007) is a validated (Babel, Martin, Fazzio, Arnal & Thomson, 2008; Jeanson, et al., 2010) 21 component checklist for assessing by observation (in-situ or by video) for assessing tutors’ performance whilst conducting DTT. Fazzio et al., identified the 21 components by reviewing and synthesising the essential characteristics of effective DTT in previously published research. Wightman et al. (2012) measured the effectiveness of a self-instructional DTT training package based on the components of the DTTEF and showed an increase in DTT accuracy from 46.2% to 85.5%.

As a step towards describing competencies and developing an assessment tool that might be applicable across settings and models of service provision, Penn, Prichard and Perry (2007) developed the *York Measure of Quality of Intensive Behavioural Intervention* (YMQI). The YMQI is an observational tool that is used to score video footage of individual teaching, with scores allocated for each of 31 key competencies that Penn et al., identified as the key components of effective teaching. The authors suggest that the tool can be used to assess performance, provide guidance, and evaluate training programmes. In an evaluation of the YMQI, Whiteford et al., (2012, pg. 65) found it to be, “a reliable measure of the quality of Intensive Behavioural Intervention for children with autism”. The YMQI is designed to be

able to be used in any setting and also differs from other measurement tools in that it both defines the competencies required as well as provides a means of assessing them. The focus, however, is on the delivery of direct teaching and not on other related competencies, such as the ability to conduct reinforcer preference assessments, which typically happen outside of a teaching session.

Our main aim in the present study was to present three measures (a self-assessment form, a test of knowledge, and a supervisor rating form designed by the authors and based on the UK ABA Autism Education Competence Framework Level 1, 2011) and to explore the construct validity of these measures along with the YMQUI. We also examined convergent validity by evaluating associations between these measures that all aim to measure dimensions of competence. To examine the validity of the measures of ABA competencies, we adopted two research design aspects. First, following Davies et al. (2002), we compared relatively experienced and inexperienced autism tutors. Second, we compared the inexperienced tutors' measured competencies before and after an intensive 12-month competencies-based ABA training program.

## **Method**

### **Design**

A between-groups design was used to assess the construct validity of the measures of competencies across two groups of tutors: “experienced” versus “inexperienced”. A repeated measures design compared the changes in competencies between the inexperienced group at baseline (T1) and again after one academic year of competence based training (T2).

### **Setting and Participants**

The study was conducted in a school for children and young people with autism (age 3 to 19 years) in the UK that uses principles and procedures derived from ABA (Lambert-Lee et al., 2015). Participants came from two groups of ABA tutors recruited onto the school's annual graduate training programme. At the time, all recruits to this programme were required to have been educated to at least bachelor degree level and to have had some experience of working with children. There was no requirement to have prior experience working with individuals with autism or using the principles of ABA, although this was desirable. The selection process consisted of a written application form, an interview, a written test, a group exercise and a fitness test. The difference between the two groups was the year of recruitment.

Group A consisted of tutors recruited onto the annual graduate training programme in 2010. There were 13 participants (one male). The age range was 22 - 27 years. All were educated to at least bachelor degree level, 9 were psychology graduates, 1 had a masters in education and 3 had a masters in ABA. None of the tutors were BACB certified. Prior to joining the graduate training programme 4 participants had experience of working in an ABA setting; one had 1 years' experience and 3 had two years' experience. 11 of the participants had some experience working with children with autism ranging from 2 to 36 months. At the time of the study they had all received a six-week induction training, a full years' on-going training and had one year of experience in this particular setting. Group A was therefore categorized as an "experienced" group.

Group B consisted of tutors recruited onto the annual graduate training programme in 2011. There were 13 participants (one male), with an age range of 21 to 32 years. All were educated to bachelor degree level, 9 were psychology graduates and 2 had masters level degrees although not in ABA. None of the tutors were BACB certified. 11 participants had no experience of ABA prior to their recruitment; one participant had 2 months experience and

1 had 14 months. All but one had some experience of working with children with autism ranging from 0 to 48 months, with a mean of 16 months. These were new employees and at the start of the study had received the school's standard six-week induction training but had no experience in this particular setting. This group was therefore categorized as "inexperienced".

### **Staff training**

At the start of their employment in July 2010 and 2011 respectively, both groups had an initial two weeks' induction to their new roles and to the organisation. Topics covered included mandatory health and safety training, safeguarding, internal procedures and an introduction to autism spectrum disorder and ABA. The training was didactic and was delivered by staff with experience in ABA and autism education.

Group A tutors then had 12 months of "training as usual". Developed in-house, this consisted of in-situ practical training in behavioural techniques delivered using behaviour skills training (BST): modelling, rehearsal and feedback, delivered by the ABA supervisors assigned to the classes in which the tutors were working. In-situ training was supplemented by additional twilight didactic training sessions covering generic topics. This training was not based on an agreed list of competencies, and there was no explicit relationship between the didactic and in-situ teaching sessions although both covered topics that are typically covered in ABA training including discrete trial teaching, natural environment teaching, reinforcement and punishment, data collection and analysis, chaining, shaping and task analysis. Over the course of the year tutors worked through a training portfolio with a checklist of skills to acquire, again developed in-house and based on collective experience. An ABA supervisor with a minimum of two years clinical experience verified the mastery of each of these skills through in situ observation on an on-going basis. Mastery was defined as



the tutor demonstrating skills in 90% of opportunities presented across two sessions and with two supervisors.

Group B (inexperienced tutors) had six weeks of in-situ behaviour skills training, focusing on the delivery of discrete trials and following behaviour management protocols, before beginning the competence based training. This was necessary from an ethical point of view as in this setting the tutors begin to work with the cohort of students at the school (children with autism and many with severe challenging behaviours) immediately after the two week induction training and some basic training was required in order to work safely with pupils. Competence based training began after the six week in-situ training. This was similar to the “training as usual” as it consisted of a mix of behavioural skills training in-situ and didactic teaching throughout the year. The difference was that both the in-situ and didactic training were based on the competencies detailed in the competence framework, the relationship between the knowledge and practical skills was explicit, and didactic sessions were held at least fortnightly. Tutors also worked through a training portfolio but in this case based on the competencies included in the framework. The criteria for verifying mastery of the skills was the same as that used for Group A.

## **Measures**

Four measures were used to assess tutors’ competencies in ABA. All four measures were adopted by the school at the start of the academic year 2011 as part of their routine staff performance evaluation assessments.

**ABA Competencies Self-Assessment Form.** The ABA Autism Education Competencies Self-Assessment (ABACF – SA) form (Appendix F) was developed for the present study. Designed to be used in conjunction with the UK ABA Autism Education Competence Framework, it consists of a grid of boxes representing the 184 knowledge (K1 –

K184) and 147 demonstrable behaviour competencies (D1 – D147) across 13 ABA content areas included in the framework (Table 2), (see Chapter 2).

**Table 2:** *Content areas included in the UK ABA Autism Education Competence Framework Level 1 (2011)*

Section	Section content
ABA1	Definition, Characteristics and Scope of Applied Behaviour Analysis
ABA2	Principles, Processes and Concepts
ABA3	Increasing behaviour: Rationale for targets, choosing and monitoring
ABA4	Increasing behaviour: Consequence based strategies- reinforcement
ABA5	Increasing behaviour: Antecedent based strategies – Stimulus control and antecedent procedures
ABA6	Increasing behaviour: Combining antecedent (stimulus) and consequence strategies – 4 term contingency and teaching complex behaviours
ABA7	Increasing behaviour: the importance of developing a language repertoire
ABA8	Decreasing behaviour: rationale for intervention, choosing and monitoring
ABA9	Decreasing behaviour: Consequence based strategies – Using an understanding of reinforcement to reduce problem behaviour
ABA10	Decreasing behaviour: Antecedent based strategies
ABA11	Measurement of behaviour and data display
ABA12	Behaviour Change procedures – Generalisation and Maintenance
ABA13	Behaviour Change Procedures – Self management Strategies

Tutors complete the checklist independently, shading the corresponding boxes for those knowledge and demonstrable behaviour skills in which they believe themselves to be competent. Those competencies that they identify as not yet mastered are left blank. The ABACF-SA takes approximately two hours to complete. For the purposes of this research, each checked box was assigned a score of 1, each unchecked box a score of 0, and the total scores for each subject area were recorded. This measure provided two separate total scores: for knowledge, and demonstrable behaviour competencies.

**Test of Knowledge.** The Test of Knowledge (Appendix G) is designed to assess participants' knowledge competencies. The first two authors developed the test. It consists of 20 short answer questions and multiple-choice questions selected from a pool of questions

and corresponding answers based on the competence framework. Each question is worth one point, giving a maximum score of 20. Sources of information for the questions included the authors' own experience, published literature on ABA (Cooper, Heron, & Heward, 2007; Lee & Axelrod, 2005; Miltenberger, 2007) and the online resource that accompanies Cooper et al (2007). Senior ABA staff at the school, all of whom were BCBA or BCaBA and were external to this study, validated the questions and answers. The test takes one hour to complete and is administered under examination conditions (supervised by an invigilator, no notes allowed and no conferring amongst candidates). The investigators also developed a scoring key for the Test of Knowledge to ensure objectivity and consistency. Total scores are calculated as percentage correct.

**Supervisor rating form.** The Supervisor Rating Form (ABACF-SRF) was used to assess tutors' demonstrable behaviour competencies. The checklist was developed by a masters student supervised by the author of this thesis, who worked in the setting. It consists of the 147 demonstrable behaviour competencies defined in the UK ABA Autism Education Competence framework, in the ABA content area. A three-point rating scale: "not met" (0 point), "partially met" (1 point) and "fully met" (2 points) is used to score each competence item giving a possible maximum score of 294. "Fully met" is defined as a tutor demonstrating skills in 90% of opportunities presented across a minimum of 6 sessions observed by the tutor's supervisor as well as any skill that has been signed off as mastered in the tutors ongoing training portfolio. Partially met and not met are defined as a tutor demonstrating skills in over or under 50% of opportunities respectively across a minimum of 6 sessions observed by the tutor's supervisor or also based on discussions with relevant staff members (i.e., ABA Consultant, Class teacher), discussions with tutors, individual tutor's contributions during weekly progress review meetings, and prior experience of the tutor's practice. Ratings are carried out by each of the tutors' own supervisors. Training in its use was provided by the

masters student. Supervisors are given 3 weeks to collect this data; filling in the form based on collected data takes approximately 2 hours.

**York Measure of Quality Intervention.** Tutors' demonstrable behaviour competencies were also assessed using the YMQI. Developed by Perry, Flanagan and Prichard (2008), this is a detailed observational tool to assess tutor's quality of one-to-one teaching in an ABA discrete trial setting. Observations are based on 30 min of videotape per tutor showing them working with a child with whom they are familiar and running a typical educational teaching session. The YMQI measures nine categories, which consist of 31 items (Table 3). Two 5-min segments (randomly selected from each 30-min video clip of each tutor via a random number generator) of video footage are rated using the YMQI scoring form (see Perry, Flanagan, & Prichard, 2008). To conduct this assessment accurately, raters are required to complete the YMQI training program. Training consists of reading the YMQI administrative manual, completing a quiz, and watching videotapes and completing various exercises. 80% inter-rater agreement on scoring at least three practice videotapes was required before conducting the coding for this research.

The YMQI uses a 5-point rating scale, with half points (1 = poorest quality, and 3 = highest quality). Guidelines are provided for each item based on the behaviours that tutors need to demonstrate and, in the case of some items, based on the reactions of the children receiving intervention. A score is given for each of the 31 competences listed or N/A if there are no examples of the competence in the segment (for example no opportunity for error corrections or prompts). Both video segments are scored individually and the average across both segments yields a total score for each tutor. For the purposes of this research, the raw scores of actual ratings assigned were used. In practice, the scores can be banded into "poor" = < 2.2, "good" = 2.3 – 2.4 and "excellent" = > 2.5. It took approximately 75 min to code each videotape. The criterion set for inter-observer reliability was 80% agreement.

**Table 3:** *YMQI Categories and item descriptions*

<i>Categories of the YMQI</i>	
<b>A) Discriminative stimulus (SDs)</b>	<b>F) Teaching level</b>
1. Attending during SDs	19. Suitable task difficulty
2. Varying SDs	20. Evidence of skill acquisition
<b>B) Reinforcement</b>	<b>G) Instructional control</b>
3. Rapid reinforcer delivery	21. On-task
4. Motivating reinforcers	22. Child focus
5. Varying reinforcers	<b>H) Generalization</b>
6. Relation of reinforcers to the task	21. Varying teaching materials
7. Sincere/motivating verbal reinforcement	22. Mixing tasks
8. Differential reinforcement	23. Teaching away from the table
<b>C) Prompting</b>	24. Teaching embedded in naturalistic activities
9. Effectiveness of prompts	25. Response generalization
10. Fading and augmenting of prompts	26. Flexible teaching
11. Lack of prompting errors	<b>I) Problem Behaviour</b>
12. Follow through	29. Results
13. Implementation of error correction	30. Appropriate behaviour
<b>D) Organization</b>	31. Prevention strategies
14. Clear plan and teaching goals	
15. Accessible materials	
<b>E) Pacing</b>	
16. Length of inter-trial intervals	
17. Suitable pace for the child	
18. Intensive teaching	

## Procedure

The study was carried out over an academic year. Ethical approval for the research was obtained from Bangor University (Appendix C) and the Research Governance Review Board of the service provider (the umbrella organization responsible for the school).

The school used, as part of its routine staff performance evaluation for all graduate trainee tutors, the assessment measures described in section 2.4 over the course of the year.

Permission for the use of this data for research purposes was sought from all tutors (see Appendices D and E – information sheets and consent forms). Only those who consented to share their assessment data participated in the study. For both groups A and B this included 13 out of a possible 15 tutors. Permission was also sought from parents of those pupils with

whom the tutors worked, for working sessions to be videotaped. Each tutor was assigned a code so that data would be handled anonymously. Assessments were completed in the following order: ABACF-SA, Test of Knowledge, ABACF-SRF, and YMQI.

Tutors were given two weeks at the start of the study to complete the ABACF-SA independently. Tutors were instructed to read the description of each knowledge and demonstrable behaviour competence listed in the competence framework and simultaneously shade in any boxes on the self-assessment form they considered as mastered. They were instructed to leave the box blank for any items in which they did not believe themselves to be competent. The forms were given to the masters student after completion.

Once Group B had finished the 6 weeks in-situ training and were working with their allocated pupils, both groups were given the Test of Knowledge. The test began with the invigilator reading out the following instructions, *“There are a total of 20 short answer questions and multiple-choice questions (MCQs) to complete. Please read each question carefully before answering. For the MCQs select the most appropriate answer. Mark your choice by placing a tick (✓) in the appropriate box. Note that some questions you may select more than one answer. You have ONE hour to complete the following test”*. The test papers were handed to the masters student at the end of the assessment to be scored.

The ABACF-SRF was completed for both groups by the tutors' own supervisors after Group B had completed the six week in-situ training. These assessments were conducted as part of routine staff performance evaluation. 14 supervisors conducted the assessment. All were blind to the purposes of the study and did not know who had consented to allow their data to be used, although all knew the respective years of employment of each tutor. Supervisors were given 3 weeks to complete the form using the variety of methods to assess tutor competencies as described above in section 2.4.3. Once the data were collected, filling in each form took approximately up to 2 hours to complete.

Whilst the supervisor assessments were being conducted the videoed observations of all tutors were organized. Tutors were videotaped conducting 30 minutes of ABA programmes with a pupil they usually work with in their class. The video observations were conducted in a therapy room at the school with teaching materials required for teaching various programmes. 16 pupils (two females), aged between 7 and 18 years old were involved in the video assessments. The video camera was mounted on a tripod and set up discretely in the teaching room, where the actions of tutor and child could be observed without interfering the teaching session. The masters student was present at the beginning of each session to start and stop the video but did not stay in the teaching room. Tutors were instructed to run a typical educational teaching session including data collection. It took approximately two months to complete the video observations for both groups. Videos were coded as described in 2.4.4 (above) by me and the masters student. Neither were blind to the purposes of the study, but I did not know which of the groups each of the participants fell into. Each of the above measures were repeated in the same order for Group B at the end of the academic year and after they had completed one academic year of competence based training.

### **Reliability**

Inter-observer reliability scores were obtained for 30% of YMQUI video recordings across both groups of participants. The masters student and I rated videos independently. Agreement was calculated as follows: the total number of agreements between the two across all competencies was divided by the number of agreements plus disagreements less the number of N/A's and multiplied by 100. Inter-observer agreement was 99% for the videos rated (range, 81 to 100%). The relationship between the two scores was found to be positively and strongly related  $r(12) = .87$ ; Spearman's Rho = .93).

Reliability checks through observation in situ were conducted for 20% of the self-assessment forms and 20% of the supervisor rating forms by the masters student to make sure the tutors were completing their forms as instructed and that supervisors were scoring tutors' demonstrable behaviour competencies accurately. I then independently checked 20% of the supervisor rating forms and the self-assessment forms across both groups to check that calculations for the scoring were accurate. Agreement was 98% for the scoring of both the ABACF-SRF and the ABACF-SA. The use of an answer key for scoring the Test of Knowledge, and the opportunity for the two of us to discuss any inconsistencies of scores meant that there was a built-in mechanism for ensuring reliability of scoring for this measure.

## **Results**

### **Experienced (Group A) and Inexperienced (Group B) group differences at Time 1**

Independent samples t-tests were conducted to compare the scores of the experienced and inexperienced groups across all measures at Time 1. Table 4 shows the mean, standard deviation, t-value and effect size (Cohen's d) for both groups across the five assessment measures. Group A performed better than Group B across all measures except the Test of Knowledge. The difference with the largest effect size was seen for the ABACF-SA demonstrable behaviour measure. For the YMQUI assessment, the raw scores showed a significant difference at a p level of .05 and the effect size was large. The differences between the two groups based on the YMQUI categories "poor", "good" and "excellent" were analyzed: 69% of Group A scored "good" or above on the YMQUI compared to 31% of Group B. Due to the small sample, and possible problems with non-normal distributions, Mann Whitney non-parametric tests were also used to explore all of the group differences. An identical pattern of results was obtained and so the results are not included here.



**Table 4:** Mean, standard deviation, t-value and effect size for Experienced and Inexperienced tutor groups across the five assessment measures.

Measures	Groups	N	Mean	SD	t	Effect size Cohen's <i>d</i>
Test of Knowledge	A	13	50.38	19.55	-0.569	0.22
	B	13	54.08	12.89		
Supervisor Rating Form	A	13	253	34.29	5.099**	1.99
	B	13	187.54	31.10		
Self-Assessment Knowledge	A	13	157.54	14.37	7.802**	3.06
	B	13	79.31	33.18		
Self-Assessment Demonstrable Behaviour	A	13	129.38	9.53	15.643**	6.13
	B	13	15.08	24.56		
YMQUI total score	A	13	2.28	0.17	2.262*	0.88
	B	13	2.13	0.17		

\*\* p < .001 \* p < .05

### Change over time in Group B competence scores

Paired samples t-tests were conducted across all measures to compare the scores of Group B at T1 (baseline) and at T2 (after one academic year of competence based training). Table 5 summarises the mean, standard deviation, t-value and effect size for both time periods across the five assessment measures. Effect size was calculated using a formula adjusted for repeated measures (Dunlap et al., 1996). There was a statistically significant difference between the scores of Group B at T1 and after one year of competence based training (T2) across all measures with the largest effect seen with the ABACF - SRF. Related Samples Wilcoxon Signed Rank tests were also carried out because of the relatively small samples and potential for non-normal data distributions. Again, the pattern of results obtained was the same.

As with the differences between Group A and Group B at T1 there was a difference in the YMQI, albeit with a smaller effect size. When analysed in terms of categories of competence (Poor, Good/Poor, Good, Excellent) there is a clearer difference between the two time points: 31% scored good and above at baseline, whereas after one year of competence based training 69% scored good and above.

**Table 5:** Mean, standard deviation, t-value and effect size for Group B (T1) and (T2) across the five assessment measures.

Measures	Group B	N	Mean	SD	t	Effect size (Cohen's d)
Test of Knowledge	T1	13	54.08	12.89	-8.006**	1.98
	T2	13	79.69	12.90		
Supervisor Rating Form	T1	13	187.54	31.10	-9.620**	2.76
	T2	13	261.69	18.14		
Self-Assessment - Knowledge	T1	13	79.31	33.18	-6.602**	1.64
	T2	13	130.77	28.97		
Self-Assessment - Demonstrable Behaviour	T1	13	15.08	24.56	-9.990**	2.58
	T2	13	87.23	30.22		
YMQI total score	T1	13	2.13	0.17	-2.844*	0.879
	T2	13	2.32	0.25		

\*\* p < .001 \* p < .05

### Correlations between assessment measures

Using the scores of Group A along with those of Group B at T2 to get a larger sample size (i.e., both groups were similar at this stage having had one academic year of training and experience in the same setting), we explored associations between scores on the different competence assessments. Table 6 summarises the correlational analysis of the summary scores across each measure. There is a significant correlation at the  $p = .01$  level between the ABACF –SA measures of knowledge and demonstrable behaviour ( $r = 0.836$ ;  $r = 0.733$ ) and a significant correlation at the .05 level between the ABACF-SRF and Test of Knowledge ( $r$

= 0.386). There is a significant negative correlation at the  $p = .01$  level between the ABACF – SA demonstrable behaviour and Test of Knowledge.

**Table 6:** *Pearson Correlations across all measures of competencies*

	<b>ABACF-SFR</b>	<b>Knowledge test</b>	<b>ABACF-SA (Knowledge)</b>	<b>ABACF-SA (Demonstrable Behaviour)</b>	<b>YMQI</b>
<b>ABACF-SRF</b>		0.386*	-0.167	-0.289	-0.034
<b>Knowledge test</b>			-0.329	-0.621**	0.146
<b>ABACF-SA (Knowledge)</b>				0.836**	0.155
<b>ABACF-SA (Demonstrable Behaviour)</b>					0.097
<b>YMQI</b>					

\*  $p < .05$ , \*\*  $p < .01$

### Discussion

In this study, we sought to test the construct validity of 4 measures of assessing ABA competencies: a self-assessment form, a test of knowledge, a supervisor rating form (based on the UK ABA Autism Education Competence Framework, Level 1 2011), and the YMQI (Perry et al., 2008). The results showed a significant difference between two groups of tutors “experienced” and “inexperienced” across three of the measures: ABACF-SA, ABACF-SRF and the YMQI with the experienced group scores higher than those of the inexperienced group. The exception was the Test of Knowledge where a higher mean scored by the inexperienced group may be the result of that group having had more recent theoretical training than the experienced group, albeit that the content was the same. Within the

inexperienced group the scores over time were significantly different across all measures including the Test of Knowledge. It should be noted that there was inherent bias in all but the Test of Knowledge assessments. Self-assessment is inherently subjective as both measures are rated by the same person; the supervisors who conducted the ABACF –SRF assessments although blind to the nature of the study, would have been aware of the relative levels of experience of each individual; and the masters student and I rated the YMQI assessments and were not blind to the study albeit I did not know which groups tutors fell into. These limitations arose because the study was designed to minimise disruption in the setting by making use of data collected routinely as part of staff evaluation. A further limitation is the fact that we were unable to control for the relative levels of experience of participants prior to their employment within the setting. Notwithstanding, we have preliminary evidence that the ABACF-SA, ABACF-SRF and the YMQI appear to have good construct validity as measures of ABA competencies.

We analysed the data of Group A and group B at T2 to see if there were any correlations between the measures. Measuring staff competence is time consuming and had we been able to establish convergent validity this may have had practical value. There was a significant correlation between the ABACF-SRF and Test of Knowledge. This is consistent with the findings of Davies et al., (2002). The correlation between the ABACF –SA measures of knowledge and demonstrable behaviour was to be expected given that a self-assessment is inherently subjective as both measures are rated by the same person and therefore subject to bias. We did not expect however there to be no correlation between the self-assessment and objective measures and furthermore for there to be a negative correlation between the self-assessment demonstrable behaviour and knowledge assessment. Tutors performed relatively better on the objective evaluations than in the self-report. Whilst it is not possible to overcome bias in a self-report measure it would be interesting to reproduce the study using

raters blind to the participants' level of experience. Whilst the supervisors who conducted the ABACF –SRF assessments were blind to the nature of the study, they will have been aware of the relative levels of experience of each individual because of the length of time that tutors had been employed in the setting.

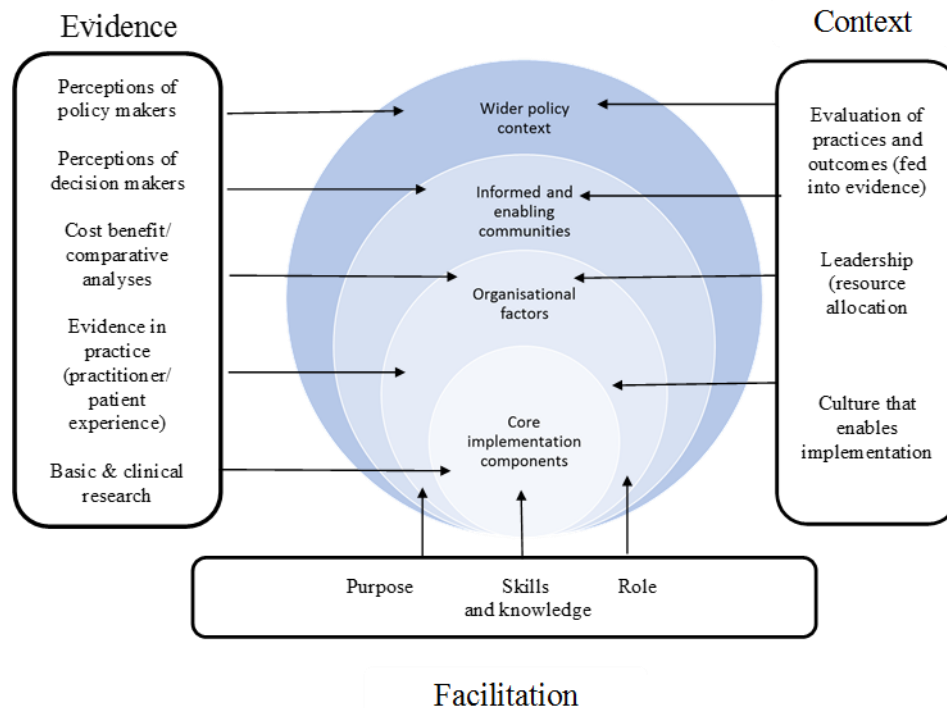
We found no correlation between the YMQUI scores and any of the other competence measures. It is likely that this is because of the difference in competencies between the YMQUI and the assessments based on the competence framework. The YMQUI focuses on those competencies needed in day-to-day teaching whereas the competence framework includes additional competencies such as the ability to write a task analysis, to conduct a preference assessment and to take accurate data. Therefore, we conducted a correlational analysis at domain level and in particular with respect to reinforcement, prompting, and generalization competencies. Even at this level, there was no correlation between the three Competence Framework based measures and the YMQUI. The domains, however, are not directly comparable. For example, the YMQUI reinforcement domain includes six competencies related to the use of reinforcement in a teaching procedure, whereas the ABACF-SRF and the ABACF-SA Demonstrable Behaviour measures include 25 reinforcement delivery competencies independent of procedure.

The lack of correlation between the new competence assessments and the YMQUI could also be due to the ways in which the assessments are scored. The scoring on the former for instance are based simply on whether each competence has or has not been achieved. The YMQUI includes a qualitative assessment. Even if a particular competence is demonstrated within the video segment, if it is not consistently demonstrated in each of the teaching trials viewed, the score will be marked down. Furthermore, the criteria for assessment for some of the competencies within the YMQUI include child reaction, whereas the three competence based assessments focused only on tutor behaviour. In addition, some of the components of

the YMQI include elements of programming, such as the teaching level and content, that is determined by the programme supervisor or consultant. These competencies are not included in the UK ABA Autism Education Competence Framework level 1 (Chapter 2) because it is aimed at front line practitioners and not supervisors or consultants. The lack of correlation may also be influenced by a practical issue; to record video sessions for the YMQI, teaching was conducted in a separate room outside of the classroom in which pupils and tutors normally worked. This was because of permission/confidentiality issues – filming in a classroom might have inadvertently included footage of other children from whom no permission for filming had been obtained. This may have contributed to tutors not being as fluent as they might be in the classroom and to children’s reactions being atypical.

There is a gap in current research within our field into the quality of intervention. In this study, we examine one aspect of quality through an investigation of ways of measuring tutor competence at the point of delivery. Each assessment measured different facets of competence. Apart from the Test of Knowledge, each demonstrated construct validity and yet there was little convergent validity even when the assessments were developed using the same competencies framework. This has some very practical implications for both clinical practice and future research. The implication for clinical practice is that for a comprehensive assessment of the quality of ABA provided to children, multiple assessment methods are likely to provide a more complete picture, but this can be labour intensive and time consuming. The implication for research is the need to explore further the factors that constitute “quality” intervention and how we might establish these in practice through training and the delivery of services.

**Chapter 4: Common approaches to intervention for the support and education of children with autism spectrum disorder in the UK: An internet-based parent survey<sup>7</sup>.**



The research undertaken for Chapters 2 and 3 (Studies 1 and 2) assumed a demand for behaviourally-based interventions in relation to autism education. The third study, described in Chapters 4 and 5 explores parental involvement in that demand. Chapter 4 attempts to identify and describe the interventions used currently and in the past, by a UK sample of 160 parents of children and young people with autism. It sets the scene for Chapter 5 which explores the third factor in implementation: consumer involvement in, and perceptions of the selection and evaluation of practices.

<sup>7</sup> A version of this chapter has been published as Denne, L. D., Hastings, R. P., & Hughes, J. C. (2017). Common approaches to intervention for the support and education of children with autism in the UK: An internet-based parent survey, *International Journal of Developmental Disabilities*. DOI: 10.1080/20473869.2016.1275439

### **Abstract**

There is a distinct lack of research identifying the interventions used by parents for the support and education of children with autism in the UK. This internet-based survey is the first to report exclusively on data from a UK sample of 160 parents. We sought to identify and describe the interventions used currently and in the past, and explored associations between parent and child characteristics and interventions used. We found that visual schedules, speech and language therapy, and Applied Behaviour Analysis (ABA) were currently most in use, and that the majority of parents reported using more than one intervention concurrently. Younger children were more likely to be currently using at least one intervention, and current use of ABA was found to be associated with higher parental educational level. The findings highlight the need for further research into the factors that underlie decision making in respect of interventions used.

*Key words: autism, intervention, behaviourally based intervention, United Kingdom*



## Introduction

There is a paucity of research in the UK into treatments and intervention for children with autism spectrum disorder (ASD) (Pellicano, Dinsmore, & Charman, 2013). Current national guidance and policies, with the exception of the recent revision of Scottish guidance for ASD interventions (SIGN, 2016) have been slow to reflect an emerging evidence base for behavioural approaches (Lai et al. 2014), and are not in line with guidance and practice in other parts of the world (McPhilemy & Dillenberger 2013). This is despite the fact that ASD is estimated to affect approximately one percent of the population of children (Baird et al., 2006); that the economic cost of the condition in children is greater than the equivalent costs of diabetes and asthma (Flanders et al., 2006); and that over a person's lifespan, the high costs of ASD internationally are due to special 'education in childhood' and 'residential accommodation, medical care and productivity losses in adulthood' (Buescher et al., 2014).

ASD is a life-long neurodevelopmental disorder characterised by difficulties with social communication and interaction and repetitive behaviours and interests. Co-morbidity is high: over 70% of individuals with ASD have a concurrent medical, developmental or psychiatric condition (Lai et al., 2014), and approximately half of children with ASD also have an intellectual disability (Totsika et al., 2011). Described as a spectrum, the way ASD affects every individual is different and although some people can lead relatively independent lives many others will need support over their lifetime (Howlin et al., 2004). There is currently no known single cause of ASD and, to date, no cure. There are, however, a huge number and variety of treatment options available to clinicians, educators and parents of children with ASD (Green et al., 2006). The Research Autism website in the UK (Research Autism, n.d.) currently lists 1320 'Interventions, Treatments and Therapies'. If we are to

address the lack of research into treatments and intervention in the UK, a good place to start would be to focus on those approaches most commonly used. But there is a major gap in the literature in this respect. Whilst data from the UK have been included in previous studies there are none that focus exclusively on identifying approaches to ASD intervention in the UK.

Green et al.'s (2006) survey was the first attempt to identify the number and types of interventions being used by parents to support their children with ASD. The authors suggested that there was an emerging body of research comparing the effectiveness of treatments thought to be commonly used (e.g., Heflin & Simpson, 1998); yet there were no empirical data on actual treatments used in practice. The survey focused on parents of children with a diagnosis of ASD and Asperger syndrome and included children up to the age of 21. Using distribution via the internet, Green et al. (2006) recruited 522 participants worldwide. Few were from the UK, which was described as one of 11 countries accounting for 23 participants. A subsequent study (Goin-Kochel et al., 2007) sought to extend Green et al.'s (2006) research by including children with Pervasive Developmental Disorder—Not Otherwise Specified (PDD-NOS) in addition to those with either ASD or Asperger syndrome. It also included children up to the age of 21. This too had few data from the UK. Of the 479 participants in total, 79 participants came from five countries, one of which was England. A very recent study has examined early interventions for ASD across 18 countries in Europe (Salomone et al., 2016). The data were analysed at a regional level although some raw data are given at a country level. There were 111 respondents for the UK. However, the focus of the study was on early intervention only and was limited to parents of children aged seven years and below.

Research into the use of interventions that focuses exclusively on the UK is limited.

Barrett et al. (2012) studied services accessed by children aged 24–60 months with ASD, but the focus of their study was on the economic costs of services, rather than on the identification of specific interventions used. Cassidy et al. (2008) surveyed the support currently accessed by families but although ‘support’ included interventions, the focus was not intervention specific. In addition, the research was focused on Northern Ireland only and not the other three countries of the UK.

Both Green et al.’s (2006) and Goin-Kochel et al.’s (2007) surveys asked about a broad range of interventions. Green et al. (2006) grouped 111 ‘common’ treatments into seven broad categories including medications, vitamin supplements, special diets, medical procedures, educational/therapy approaches, alternative therapy/medicine, and combined approaches. Participants reported using an average of seven different interventions. The most frequently reported were speech and language therapy, visual schedules, sensory integration and applied behaviour analysis (ABA). Goin-Kochel et al. (2007) grouped interventions into drug and diet treatments and behavioural/educational/alternative therapies. They found similar results: children with ASD were reported to be currently using an average of four to six interventions; had used between seven and nine interventions in the past; and speech and language therapy, sensory integration, early intervention and ABA were the most frequently reported interventions used.

Salomone et al. (2016) focused on early intervention and divided interventions into ‘Behavioural’, ‘Developmental’, ‘Relationship-based’, ‘Portage’, ‘Speech and Language Therapy’, ‘Occupational Therapy’, and ‘Parental Training’. This study found that speech and language therapy was the most frequently reported: 62% of participants reported using speech and language therapy, 26% were using occupational therapy, 23% parent training, 18% behavioural approaches and 8% developmental and or relationship based interventions. Data

were not reported on the number of interventions a child might be experiencing concurrently.

In addition to identifying the interventions used, both the Green et al. (2006) and the Salomone et al. (2016) studies investigated whether parent or child characteristics were associated with the use of different interventions. Green and colleagues found an association between the type of ASD and severity of the child's disability and the category of treatment used: 80% of parents who described their child's ASD as 'severe' were using approaches based on ABA, compared to 24% of parents who described their children's diagnosis as Asperger syndrome. Green et al. (2006) also found that a greater number of treatments were used by parents who described their child's ASD as 'severe'. Salomone et al. (2016) found that the increased use of specific interventions, notably behavioural, developmental and relationship-based interventions was associated with higher parental educational level.

Our aim in this study was to address a current gap in our understanding of the interventions currently and historically used by parents of children with ASD in the UK. This gap is important because a first step in addressing the dearth of research into treatments and intervention in the UK is an understanding of the current approaches commonly used. Additionally, we emphasised interventions for the education and support of children with ASD, and not medical treatments, because support for children with ASD in the UK is typically delivered through education. Unlike the Salomone et al. (2016) research, we included children up to the age of 19 because at the time of the survey that was the age which children in the UK with special education needs were able to stay in full-time education. As well as identifying interventions used, we explored associations between parent and child characteristics and the type and number of interventions used.

## Method

### Participants

One hundred and seventy-six parents of children with ASD agreed to take part in an internet survey. Participants were recruited via the internet using email distribution to a variety of parent support groups and via the mailing lists of ASD organisations in the UK. These included the Autism Education Trust, Talk about Autism, Ambitious about Autism, Child Autism UK, the Pan-London Autism Schools' Network, and ABA-UK. It is not possible to estimate the number of parents that may have been contacted as data protection laws in the UK meant that the researchers did not have direct access to the mailing lists. Eligible participants included all parents of children and young people up to the age of 19 with a diagnosis of any ASD or Asperger syndrome, living in the UK. Sixteen were excluded. Of these, three of the questionnaires were not completed beyond the consent form and two did not complete the questionnaire beyond the demographics section. Eleven questionnaires were outside of the parameters set by the study: five described children over the age of 19; four lived outside of the UK; and two of the questionnaires were not completed by parents. The remaining 160 participants were drawn from all four nations of the UK (England, Wales, Scotland and Northern Ireland), from 104 different local authority/local government areas.

The majority of participants, ( $n = 142$ , 88.75%) were mothers of children with ASD, 13 (8.12%) were fathers, three people described themselves as 'parents' and there were two adoptive parents. The modal age range category of participants was 35—44 years of age (45% of the sample). Educational level was high with 76.7 % of participants having a degree or post-graduate qualification or equivalent. In 87.8 % of households there was at least one person in paid employment outside of the home and 52.6% of participants had a household income of over £45,001 ( $\approx$ USD 64,001) which is just above the median income for a couple with two children in the UK at the time of the survey (HM Treasury, 2014). A summary of

these and further demographic details can be found in Table 1.

Table 1: *Characteristics of participants (parents)*

<b>Characteristics of parents</b>	<b>% of sample</b>	<b>Characteristics of parents</b>	<b>% of sample</b>
<b>Relationship</b>		<b>Ethnicity</b>	
<i>Mother</i>	88.75	<i>White</i>	89.9
<i>Father</i>	8.12	<i>Asian</i>	5.0
<i>Parent</i>	1.87	<i>Black</i>	0.7
<i>Adoptive parent</i>	1.25	<i>Mixed</i>	4.4
<b>Education</b>		<b>Age</b>	
<i>No formal educational qualifications</i>	2.5	<i>25 - 34</i>	6.9
<i>School level qualifications</i>	8.8	<i>35 - 44</i>	45.0
<i>College level qualifications</i>	12.0	<i>45 - 54</i>	39.4
<i>Undergraduate qualifications</i>	40.5	<i>55 - 64</i>	8.7
<i>Postgraduate qualifications</i>	36.2		
<b>Employment</b>			
<i>Employed (respondent)</i>	50.9		
<i>Full-time</i>	41.5		
<i>Part-time</i>	58.5		
<i>Employed (Partner)</i>	81.1		
<i>Full-time</i>	81.8		
<i>Part-time</i>	18.2		
<b>Household income</b>		<b>USD equivalent (approx.)</b>	
<i>Less than £15,000</i>	9.6	<i>\$21,350</i>	
<i>£15,001 to £25,000</i>	13.5	<i>\$21,351 to \$35,600</i>	
<i>£25,001 to £35,000</i>	9.6	<i>\$35,601 to \$49,280</i>	
<i>£35,001 to £45,000</i>	14.7	<i>\$49,281 to \$64,001</i>	
<i>£45,001 to £55,000</i>	9.0	<i>\$64,001 to \$78,300</i>	
<i>£55,001 to £65,000</i>	9.0	<i>\$78,301 to \$92,520</i>	
<i>£65,001 to £75,000</i>	7.7	<i>\$92,521 to \$106,750</i>	
<i>£75,001 to £85,000</i>	6.4	<i>\$106,751 to \$120,990</i>	
<i>£85,001 or more</i>	20.5	<i>\$120,991 or more</i>	

The majority (n =131, 81.9%) of the children reported on by the parents were male and the mean age of the children was 10.46 years (range: 2-19; mode = 11 years). Most (n =102, 63.7%) were described as having a diagnosis of ASD, 33 (20.6%) were described as having Asperger syndrome, there was one diagnosis of PDD-NOS, and 24 (15.0%) 'other'. The 'other' category included other descriptors of ASD such as atypical autism, high functioning autism, and childhood autism.

Parents were asked to describe their children's communication skills and whether or not they had an intellectual disability: 14.5 % were described as non-verbal, 9.5% as using single-word speech and 76.0% as having phrase speech, and 51.6% of the children were described as having an intellectual disability. The majority (95.6 %) of the children lived with the participant parent. Of those who did not, most either lived with another parent or were in a residential placement. Schooling was mixed. Not all participants responded to the question but of those that did just over half of the children were in mainstream education, although the majority of these had extra support: 40.6 % in mainstream school with additional support, 6.5% were in a specialist unit in mainstream school, and 5.8% were in mainstream school. A summary of these and further demographic details can be found in Table 2.

Table 2: *Characteristics of participants (children)*

<b>Characteristics of children</b>	<b>% of sample</b>
<b>Diagnosis</b>	
<i>Autism</i>	63.7
<i>Asperger syndrome</i>	20.6
<i>PDD - NOS</i>	0.7
<i>Other</i>	15.0
<b>Language ability</b>	
<i>Phrase speech</i>	76.0
<i>Single-word speech</i>	9.5
<i>Non-verbal</i>	14.5
<b>Learning Disability</b>	
<i>Yes</i>	51.6
<i>No</i>	48.4
<b>Schooling</b>	
<i>Mainstream school/FE</i>	9
<i>Mainstream with support</i>	40.6
<i>Mainstream specialist unit</i>	6.5
<i>Special school/FE</i>	23.9
<i>Other</i>	20

### Survey development

The survey used for this study was developed by the authors (Appendix I) and was in two parts. Part 1, 'Background Information' included standard demographic questions about the parent and their child with ASD. Part 2, 'Common approaches to autism intervention', was informed by Green et al.'s (2006) internet survey of treatments used by parents of children with ASD but focused specifically on interventions typically used in the education and support of children with ASD in the UK. Approaches selected were also based on those listed on the websites of the National Autistic Society (NAS) in the UK and the UK charity Research Autism. 18 interventions were included. These are shown in Table 4 (see results below).



We believe that listing ABA alongside behaviourally based approaches such as Early Intensive Behaviour Intervention (EIBI) is an example of a category error. ABA is not an intervention. It is the applied branch of the science of behaviour analysis and the basis of a number of approaches that have been developed in respect of the education of children with ASD that are based on the same underlying principles of learning and goals for improving socially important behaviours. However, this is a common error, and the inclusion of ‘ABA’ as a separate term in this survey was deliberate in our strategy because it reflects the terminology used on the websites we reviewed and information more widely available to parents in the UK. Participants were given the options of choosing ‘currently using’, ‘used in the past’, ‘never used’ and ‘don’t know’.

### **Procedure**

Ethics approval was given by the Bangor University School of Psychology Research Ethics and Governance Committee (Appendix H). The survey was distributed via email. Parents provided informed consent before completing the survey (see Appendix I – an information sheet and consent form was included at the start of the survey). The survey was open for 5 months from the end of August 2014 to the end of January 2015.

### **Treatment of data**

For the purposes of data analysis, parent and child characteristics, other than the child’s age were grouped into nominal values (Table 3).

Table 3: *Treatment of Parent and Child demographic data*

Question	treatment
What is the gender of your child with autism?	1 = male 2 = female
If you have been given an autism-related diagnosis for your child which of the following best describes that diagnosis?	1 = Autism 2 = Other (Asperger Syndrome, Pervasive Development Disorder - Not otherwise specified (PDD-NOS), Childhood Disintegrative Disorder, Other)
Does your child with autism also have a general learning disability? (described perhaps as mild or moderate or severe or profound)	1 = Yes 2 = No
How much language does your child with autism use?	1 = Non-verbal/single word speech 2 = Phrase speech
Please select the highest level of your educational qualifications.	1 = Polytechnic/University degree, NVQ 4, or equivalent level and above 2 = Below Polytechnic/University degree, NVQ 4, or equivalent
If your child is of school/further education age, please tell us what type of school he or she attends	1 = Mainstream school 2 = Specialist school/other
What is your current total annual family income? Please include a rough estimate of total salaries and other income (including benefits) before tax and national insurance/pensions	1 = Less than or equal to £45,000 2 = More than £45,001

## Results

### Common approaches to autism intervention

The majority of participants ( $n = 116$ , 72.5%) were currently using at least one of the approaches to ASD intervention listed. Of these, 91 (78.4%) were using more than one approach. The mean number of approaches being used currently was 2.7 per child (range of 0-11). Forty-four (27.5%) participants reported that they were currently not using any of the common approaches to ASD intervention. Of those not currently using any of the common approaches to ASD, 6.25% had either never used any or did not know whether or not their child had been exposed to any of the listed interventions. Thus, the vast majority of parents were currently using, or had in the past used, at least one identifiable non-medical intervention for their child with ASD.

Table 4 summarises the use of each of the common approaches to ASD intervention by parents in the sample. Visual schedules ( $n = 74$ , 46.2%), speech and language therapy ( $n = 72$ , 45.0%), and ABA ( $n = 50$ , 31.3%) were the interventions currently most in use. This is also true when the figures of 'currently using' and 'used in the past' are combined: visual schedules ( $n = 125$ , 78.1%), speech and language therapy ( $n = 121$ , 75.6%) and ABA ( $n = 72$ , 45.0%); and when using the figures of those children currently only using one intervention: visual schedules (52%), speech and language therapy (24%) and ABA (8%).

The interventions that currently featured the least were Pivotal Response Training (PRT) ( $n = 5$ , 3.1%), Early Start Denver Model (ESDM) ( $n = 2$ , 1.3%) and Son Rise ( $n = 0$ , 0%). The interventions that were most often reported as having never been used were Son Rise ( $n = 122$ , 76.3%), ESDM ( $n = 115$ , 71.9%) and PRT ( $n = 111$ , 69.4%).

Table 4: *Summary of common approaches to ASD*

Common approaches to ASD	Currently using		Used in the past		Currently using & used in the past		Never used		Don't know	
	#	%	#	%	#	%	#	%	#	%
Visual Schedules	74	46.2	51	31.9	125	78.1	25	15.6	10	6.3
Speech and Language Therapy	72	45.0	49	30.6	121	75.6	30	18.8	9	5.6
Applied Behaviour Analysis	50	31.3	22	13.8	72	45.0	67	41.9	21	13.1
Verbal Behaviour	31	19.4	11	6.9	42	26.3	84	52.5	34	21.3
PECS	31	19.4	37	23.1	68	42.5	76	47.5	16	10.0
Behaviour Modification	29	18.1	26	16.3	55	34.4	62	38.8	43	26.9
Natural Environment Teaching	22	13.8	4	2.5	26	16.3	93	58.1	41	25.6
Incidental Teaching	21	13.1	5	3.1	26	16.3	83	51.9	51	31.9
Discrete Trial Teaching	20	12.5	18	11.3	38	23.8	86	53.8	36	22.5
Augmentative & Alternative Comm	19	11.9	22	13.8	41	25.6	95	59.4	24	15.0
TEACCH	19	11.9	20	12.5	39	24.4	91	56.9	30	18.8
Early Intensive Behaviour Intervention	12	7.5	15	9.4	27	16.9	92	57.5	41	25.6
Functional Communication Training	11	6.9	3	1.9	14	8.8	98	61.3	48	30.0
SPELL	11	6.9	7	4.4	18	11.3	104	65.0	38	23.8
Lovaas	7	4.4	17	10.6	24	15.0	99	61.9	37	23.1
Pivotal Response Training	5	3.1	4	2.5	9	5.6	111	69.4	40	25.0
Early Start Denver Model	2	1.3	8	5.0	10	6.3	115	71.9	35	21.9
Son Rise	0	0	4	2.5	4	2.5	122	76.3	34	21.3

All interventions had a percentage of parents who reported not knowing whether their child was using that intervention. Most commonly reported as 'don't know' were: incidental

teaching (n = 51, 32% don't know); functional communication training (n = 48, 30%); natural environment teaching (n = 41, 25.6%) and PRT (n = 40, 25%). Least commonly reported were speech and language therapy (n = 9, 5.6%) and visual schedules (n = 10, 6.3%).

Six of the interventions listed recorded higher use in the past than current use: Lovaas, ESDM, PECS, alternative and augmentative communication, TEAACH, and early intensive behaviour intervention (EIBI); with Lovaas showing the biggest difference (n = 7 currently using; n = 17 used in the past).

### **Behaviourally based interventions**

Just under half (n = 73, 45.6%) of all participants were currently using at least one behaviourally based intervention (defined as ABA, verbal behaviour, EIBI, PRT, natural environment training, incidental teaching, discrete trial teaching (DTT), Lovaas, Behaviour Modification, functional communication training or ESDM). When the currently using and used in the past data are combined, the majority (n = 100, 62.5%) of participants had experience of a behaviourally based intervention.

### **Associations between interventions used and participant characteristics**

Excluding the seven interventions that were currently being used by less than 10% of the sample (EIBI, functional communication training (FCT), SPELL, Lovaas, PRT, ESDM and Son Rise), 2x2 contingency tables were constructed to examine whether there were any relationships between the interventions used and parent and child characteristics. Only those relationships of interest are reported, either because of a relationship found or because previous research has suggested a relationship. Table 5 shows that current use of ABA was found to be associated with higher parental educational level ( $\chi^2 = 9.216$ ;  $p < .01$ ). There was

no association between reported household income and the use of any intervention.

Table 5: Associations between intervention used currently and child and parent characteristics

	Parent and child characteristics			
	Child Age	Child use of Language	Total family income	Parental Education
	<i>t</i>	$\chi^2$	$\chi^2$	$\chi^2$
Behaviour Modification	-1.127	0.000	3.201	0.756
Incidental Teaching	-0.770	4.689	0.000	2.299
TEACCH	-0.481	0.019 <sup>a</sup>	0.054	1.000 <sup>a</sup>
PECS	-1.016	24.427**	0.009	0.123
Discrete Trial Teaching	-1.094	0.026 <sup>a</sup>	3.154	0.247 <sup>a</sup>
ACC	-1.137	0.000 <sup>a**</sup>	6.040	1.000 <sup>a</sup>
Verbal Behaviour	-3.570	9.410*	6.426	4.060
Speech and Language Therapy	-3.570	22.473**	0.008	0.377
Visual Schedules	-0.627	7.723*	1.530	0.116
ABA	-1.698	19.293**	5.530	9.216*
Use of any behavioural approach	-2.175	21.583**	2.270	3.362
Use of any intervention	-3.730	17.533**	0.027	0.359

<sup>a</sup> Fisher's exact test

\*  $p < .01$

\*\*  $p < .001$

Associations with child characteristics showed that overall use of any intervention ( $\chi^2 = 17.533$ ,  $p < .001$ ) and the use of PECS ( $\chi^2 = 24.427$ ,  $p < .001$ ); Augmentative and alternative communication (AAC) (Fisher's exact test =  $<.001$ ); speech and language therapy

( $\chi^2 = 22.473$ ,  $p < .001$ ); ABA ( $\chi^2 = 19.293$ ,  $p < .001$ ); and overall use of any behaviourally based intervention, ( $\chi^2 = 21.583$ ,  $p < .001$ ) were associated with the child's language use with those children described as non-verbal or using single word speech more likely to be using these interventions.

Associations between the child's age and sub-groups such as whether an intervention was used were also examined using t-tests. Use of intervention was associated with the child's age, with younger children more likely to be currently using at least one intervention ( $t = -3.730$ ), speech and language therapy ( $t = -3.570$ ) and any behaviourally based interventions ( $t = -2.175$ ).

### **Discussion**

In this study, we sought to identify and describe the interventions currently used and used in the past by parents of children with ASD in the UK. We also examined univariate associations between intervention use and child and parent characteristics. The survey is the first to report exclusively on data from a UK sample of parents.

#### **Intervention use: current**

The interventions most in use currently in the present study were visual schedules, speech and language therapy and ABA. This compares with speech and language therapy followed by visual schedules, sensory integration, and ABA, in the Green et al. (2006) study; and speech and language therapy, sensory integration, early intervention and ABA in the Goin-Kochel et al. (2007) study. In the Salomone et al. (2016) study, speech and language therapy followed by occupational therapy, and parent training were found to be the most commonly used interventions. The high percentage use of speech and language therapy in the UK is not surprising as it is routinely offered to parents as part of both the national health and education systems. There was a difference, however, in the findings between the Salomone et

al. (2016) and the present study in respect of the use of ‘behaviourally based interventions’: 18% and 45.6% respectively. This may be partly to do with the way that interventions are defined. Salomone et al. (2016) defined behavioural interventions as ABA, PRT, Lovaas, DTT and EIBI. The present study included all the above as well as verbal behaviour, natural environment teaching, behaviour modification, FCT, incidental teaching, and ESDM in its definition of behaviourally based interventions. However, the numbers for each of these (other than ABA) are small and the difference is probably due to sampling. The European study distributed the survey via ‘the main national parent support association in the UK’ (Salomone et al., 2016, p 236); the present study was distributed to a broad cross section of web-based support networks two of which specifically support parents who had chosen behavioural interventions.

We found that the majority of participants reported using at least one intervention, and that the average number of interventions currently being used was 2.7. The Green et al. (2006) and Goin-Kochel et al. (2007) studies also reported concurrent use of multiple interventions; an average of seven, and between four to six different interventions respectively. Both these studies included other categories of intervention such as medication and diets, which may account for the lower average number of interventions used in our study compared to these.

### **Intervention use: past**

Both the present, and the Green et al. (2006) studies included data on currently used interventions and those used in the past. Goin-Kochel et al. (2007) included data on interventions that had been ‘tried’ but the term is not defined and the results of this study are not comparable as in all cases the data for ‘tried’ were greater than for ‘currently using’. Green et al. (2006) note that some treatments had been used and were subsequently discontinued and suggest that this may be the result of parental experience although they



acknowledge that they do not have the data to back this up. Looking at their results it would appear that the majority of interventions that had been discontinued fell into the medication category. In the present study six of the interventions listed recorded higher use in the past than current: Lovaas, ESDM, PECS, AAC, TEAACH, and EIBI. Green et al. (2006) also found a decrease in the use of PECS and DTT (which they described as Lovaas). We would expect to see a discontinuation of EIBI and ESDM (which postdate the Green et al. study), as these are specifically targeted at younger children. Similarly, the discontinuation of TEAACH may be due to the fact that it is primarily available in schools, and the reason for the discontinuation may have been the child leaving the school. Changes in terminology over time may account for the difference in numbers between ‘used in the past’ and the ‘current use’ of Lovaas. Further research around these issues and more specifically into the factors around the decision to discontinue PECS and AAC are needed. More broadly, research that attempts to understand intervention use needs to include questions about both present and past because the snapshot view that ‘current use’ gives us does not offer a comprehensive account of interventions used in the lives of children with ASD in particular countries.

### **No intervention use**

In the present study 27.5% of participants reported that they were currently not using any intervention; but only ten respondents (6.25%) reported neither currently using nor having used an intervention in the past. Salomone et al. (2016) found that 25.2% of participants reported not using any type of intervention. The European study focused on children younger than seven years of age and it is possible that the high percentage of children currently not using one of the interventions listed is because the children had not yet begun to receive any intervention.

### **Associations between intervention use and child/parent characteristics**

In the Green et al. (2006) study, 17% of the participants' children were described as having Asperger syndrome, 61% as 'mild/functioning' autism and 22 % 'severe' as indicated by limited speech. In our study, the findings were similar: 20.6% of the children were described as having Asperger syndrome, 14.5% as non-verbal, and 9.5% as using single-word speech. Salomone et al. (2016) report that 34.2% of the UK children were described as being non-verbal or having single word speech but as they were reporting on a sample of children aged seven and below this difference is not surprising. Green et al. (2006) found that ABA tended to be used by those at the more severe end of the spectrum: 80.5 % of those described as severe reported to be using ABA compared to 56.4% of those described as 'mild' and 24.2% of those with Asperger syndrome. Goin-Kochel et al. (2007) reported similar findings. We found an association between the use of ABA and a child's language ability – but this was also apparent with other interventions, notably PECS, AAC and speech and language therapy. This is not surprising as these interventions focus on language development. Salomone et al. (2016) reported that the use of behavioural, developmental and relationship based interventions was associated with the education level of parents: those parents with a higher level of education were more likely to report using such interventions. The present study found an association between the use of ABA and education level with more parents with a higher level of education reporting use of ABA.

### **Definitions and category errors**

Salomone et al. (2016) classify ESDM as a 'developmental' rather than a behavioural' approach. On the basis that Dawson et al. (2010) describe the ESDM as an 'early intensive behavioural intervention' we included ESDM as a behavioural approach. Green et al. (2006) described discrete trial teaching as the same as Lovaas. Differences in the application of

category labels like these are common and may be confusing for parents. In the present study, the finding that the majority of parents who responded to say that they were using 'behaviourally based' interventions also reported using 'ABA' suggests that parents do not have a clear understanding of the origins and type of approaches underpinned by the science of behaviour analysis.

### **Limitations and future direction**

A clear limitation of this study is that it required internet access and a degree of literacy. It is unlikely, therefore, that the sample was representative of all parents of children with ASD in the UK. Indeed, the demographic data indicate a highly educated sample with an above average household income. Those approaches identified as commonly used may not be available to all parents of children with ASD. We are also not able to comment on whether the interventions used were by parental choice, whether they indicate a preference for one treatment over another, or indeed what parents' understanding of the respective interventions are. Additionally, we did not examine how long parents had been using each intervention, the time since diagnosis, and did not ask questions about the nature and quality of the intervention such as how it was provided, by whom, intensity, and treatment fidelity. Child characteristics such as diagnosis, language ability and co-morbid intellectual disability were based solely on parental report.

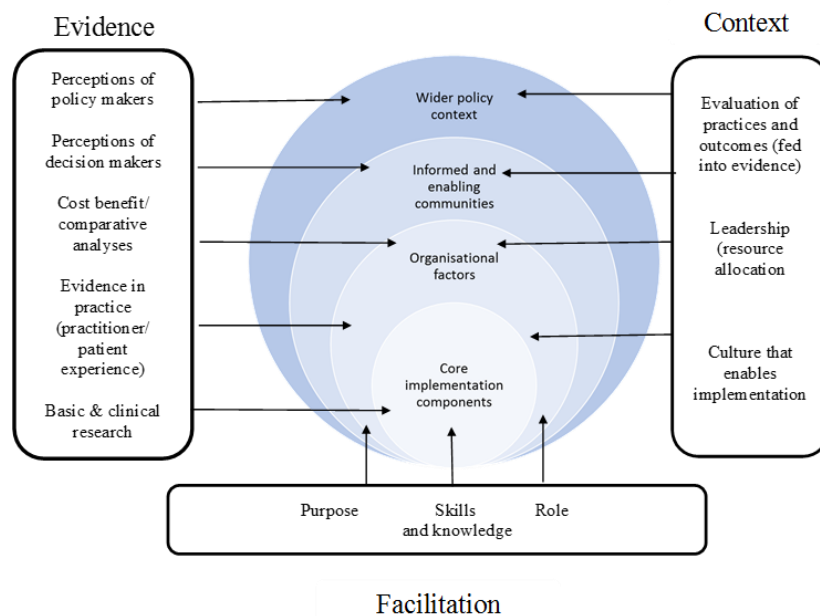
Future research should be undertaken with a more representative sample of parents across the UK. Additional research should focus on understanding the decision-making process in respect of interventions: who the key decision makers are, from where their information comes, and what factors they take into consideration.

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### **Conclusions**

Earlier we suggested that identifying the interventions most commonly used is a necessary first step towards addressing the lack of research into intervention in the UK. This also has implications for current policy and guidelines. It is interesting that even though UK guidance is not in line with guidelines and practice in other parts of the world, the present findings are broadly similar to previous research conducted elsewhere. Speech and language therapy and visual schedules are routinely offered as part of the education system in the UK. Behaviourally based interventions, however, are not, and yet they are being used by this sample of parents in the UK in the support and education of children with ASD (perhaps via home-based intervention). Parents have a right to accurate information, and those practitioners involved in the support and education of children with ASD have a responsibility to provide this information in an easily and equally accessible manner. Policy and practice needs to be aligned. Further investigation into the factors influencing the decision to use an intervention as well as the effectiveness of those interventions could achieve this.

## Chapter 5: UK parents' beliefs about Applied Behaviour Analysis as an approach to autism education<sup>8</sup>



Having established in Chapter 4 that ABA is one of the interventions currently most in use in the UK in the support and education of children with autism, Chapter 5 turns to the third stage of implementation: consumer involvement in, and perceptions of the selection and evaluation of practices. Chapter 5 is based on the same study as Chapter 4, the survey of parents of children with autism, and the method described is therefore the same. This Chapter, however, reports on data gathered as part of that survey to specifically explore UK parents' beliefs about ABA in the education and support of children with autism. In the absence of any existing measures the Parental Beliefs about ABA and Autism scale (P-BAA) was developed for this research.

<sup>8</sup> A version of this chapter has been published as Denne, L. D., Hastings, R. P., & Hughes, J. C. (2017). UK parents' beliefs about applied behaviour analysis as an approach to autism education, *European Journal of Special Needs Education*, DOI: 10.1080/08856257.2017.1297568

### Abstract

Research into factors underlying the dissemination of evidence-based practice is limited within the field of Applied Behaviour Analysis (ABA). This is pertinent, particularly in the UK where national policies and guidelines do not reflect the emerging ABA evidence base, or policies and practices elsewhere. Theories of evidence-based practice in education and policy suggest that decision makers' 'perceptions' of evidence are significant factors in dissemination. For professionals, scientific evidence is often critical. For others, including parents, experiential and anecdotal evidence can be as important. Within autism education, parents are often, and not necessarily by choice, key decision makers. This study is the first to try to identify and quantify UK parents' beliefs about ABA in the education and support of children with autism. We developed and tested, using an internet survey method, the Parental Beliefs about ABA and Autism scale (P-BAA). Current and/or past use by parents of any behaviourally based approach including ABA was a significant predictor of P-BAA scores as were parent education, household income and child diagnosis: experience of a behaviourally based approach, higher levels of education and income and children at the more 'severe' end of the autism spectrum were associated with more positive beliefs about ABA.

*Key words: autism, applied behaviour analysis, parental beliefs, evidence-based practice*

## Introduction

The Research Autism website in the UK (Research Autism, n.d.), at the time of writing, lists 1320 ‘Interventions, Treatments and Therapies’ for autism. These are not all designed to address the same issues but, even when biological and medical approaches are excluded, educators and parents of children with autism are faced with a bewildering array of options.

There is increasing consensus amongst researchers that the majority of effective interventions for building skills in children with autism are ‘behavioural and educational’ in method/orientation (Lai et al., 2014), and there is an emerging evidence base for early/intensive behavioural intervention (Salomone et al., 2016; Eldevik et al., 2012; Warren et al., 2011; Dawson et al., 2010). However, this evidence is slow to be reflected in national policies and guidance (McPhilemy & Dillenberger 2013), although the recent revision of Scottish guidance for autism interventions does recommend behavioural approaches (SIGN, 2016). In the United States, Applied Behaviour Analysis (ABA) is endorsed as an intervention approach for children with autism by a number of state and federal agencies, including the U.S. Surgeon General and the New York State Department of Health ([www.autismspeaks.org](http://www.autismspeaks.org)); similarly, in Canada intensive behaviour interventions are the publicly funded intervention of choice in most provinces (Norris, Paré, & Starky, 2006).

Recent changes in special education in the UK brought about by the Children and Families Act (2014) specifically provide for the role of parents in decision making in relation to the support that their child receives. Empowering parents to make decisions is thus important. However, in the absence of national/professional guidance, parents of children with autism in the UK often have to research interventions and take decisions alone, relying on a variety of sources of unknown provenance (Tzanakaki et al., 2012; McPhilemy &

Dillenburger, 2013). Therefore, more research is needed to understand factors that may be associated with parents' choices. In the present research, given the international evidence base for behavioural educational interventions, we focus on parents' beliefs about ABA.

Before considering the role of parental decision making in relation to ABA interventions, it will be helpful to understand what we mean by 'ABA' because this is a term that we believe is widely misunderstood. ABA is one branch of behavioural science (also known as behaviour analysis) that uses what we know about human learning, and what motivates people, to address issues that are of concern to society (Baer, Wolf, & Risley, 1968). Practitioners using this approach use the principles of learning to teach skills that are important to individuals or groups of people, and skills that enable, them and their families, to have a better quality of life (Fisher, Piazza, & Roane, 2011). Building positive and supportive environments around a person is at, or should be at, the heart of all behavioural interventions.

Almost 30 years ago, Lovaas (1987) published the evaluation of an intervention that used teaching methods derived from the science of learning with a group of children with autism. Almost half (49%) of those children showed significant IQ gains and were able to enter mainstream classes following intervention. The therapists predominantly used a teaching technique known as discrete trial teaching (DTT) and delivered the intervention over a period of two years in home-based sessions for up to 40 hours per week. The length of this intervention approach, methods of teaching, and its intensity in terms of teaching hours, was the first and early example of what we now refer to as Early Intensive Behavioural Intervention (EIBI). Although there was criticism of the research methodology used to evaluate this early example of EIBI, it sparked a growth in the number of behavioural and educational 'interventions' or 'packages' offered in the support and education of people with autism (Dawson et al., 2010). Some, such as Positive Behavioural Support (PBS) (Gore et al., 2013) and the Early Denver Start Model (EDSM) (Dawson et al., 2010) have developed for



specific age groups and populations; others have developed to address specific areas of concern such as communication, for example the Picture Exchange Communication System (PECS) (Frost & Bondy, 2002), numeracy (Tzanakaki et al. 2014) and literacy (Grindle et al. 2013). Additionally, the methods of teaching used in the Lovaas study (i.e., DTT) are regarded now as only one way to teach skills, and modern approaches based on the science of learning use a variety of techniques to help teach important life skills. Examples of specific teaching methods that are routinely used in EIBI include Natural Environment Teaching (NET) (Mosier, 2011), DTT (Lerman, Valentino, & LeBlanc, 2016), and Pivotal Response Training (PRT) (Koegel, Ashbaugh, & Koegel, 2016).

Comprehensive educational interventions, and teaching methods derived from behavioural principles are sometimes categorised, described, or even marketed as alternatives to ‘ABA’. However, we believe this is a category error (Keenan et al., 2010). We regard the term ‘ABA’ as an umbrella term that describes a number of different approaches and procedures that have all derived from use of basic human learning principles and are all aimed at building positive and supportive environments to enable people to fulfil their potential. This is not always recognised, even within the academic world. For example, Dawson et al. (2010), the research team behind the EDSM, describe their model as ‘early intensive behavioural intervention’ (p.17) and yet Salomone et al. (2016) classify EDSM as a ‘developmental’ rather than a ‘behavioural’ approach. How do parents and educators make sense of these apparently different behavioural educational methods?

The history of ABA-based approaches in the UK is relatively recent with the first home-based programme recorded in 1994 (Chapter 2). Early programmes were parent sourced, home-based and, because there were no UK based certified behaviour analysts until 2002 (Hughes & Shook 2007), were typically established with consultation from overseas practitioners. TreeHouse, the first school in the UK using an ABA-based approach, was

established in 1997. By 2012, a UK census identified 14 'ABA' schools that catered for almost 250 children ranging in age from 3 to 18 years, employing 310 staff trained in ABA (Griffith et al., 2012). As of October 2016, there were 243 certified behaviour analysts in the UK registered on the BACB<sup>®</sup> website (although it is not clear how many of these work in autism education) and ABA-based interventions are delivered within a variety of settings including nurseries, playgroups, schools, after school clubs, and from a number of provider organisations. It is important to note that these settings invariably describe their provision as 'ABA' but their respective service delivery models include a range of behaviourally based approaches as described earlier and may look very different to one another. It is also important to note that the historic growth of ABA-based approaches to autism education in the UK has been predominantly parent-driven and that parents also tend not to distinguish between ABA and specific interventions or service delivery models based on behavioural science or behaviour analysis.

Behaviour analysis has not historically been included in mainstream UK psychology or education training and, perhaps as a result, ABA-based approaches have not been routinely adopted as part of UK autism education. So, how have parents come to know about ABA-based methods in autism education and how do they make their decisions? Data from an internet survey (Green et al., 2006) support the proposition that experiential and anecdotal evidence influences parental decision making. Green et al. (2006) found that the availability of empirical evidence did not make any difference between the uptake of commonly used and rarely used autism interventions. And, in a follow up qualitative interview study with 19 of the survey respondents, Green (2007) found that the sources of information used by those who had chosen what they described as 'ABA' included: anecdotal evidence from other parents (38.5%), information from books (30.8%), and the internet (30.8%). At the other end of the scale, information from health professionals was 0% and from school/teachers 7%.

These findings are also echoed in two recent UK studies; one of which (Tzanakaki et al., 2012), explored the factors behind parental choice of EIBI, and the other (McPhilemy & Dillenburger, 2013) of parents' experience of 'ABA'. Tzanakaki et al. (2012) found that the decision to use EIBI was based on both empirical and anecdotal evidence: the testimony of other parents was cited by 55% of those interviewed as a factor, and reading books by 48.3%. One of the books cited by a number of respondents was 'Let me hear your voice' by Catherine Maurice (Maurice, 1993), a mother of a child with autism, which details her family's experience of ABA. The majority of parents in Tzanakaki et al.'s research reported that they had not been given any information about interventions, let alone behavioural interventions, at the time of diagnosis: 50% were given no information, and 13% were told that 'nothing can be done'. Tzanakaki et al. (2012) point out that this absence of information from professionals leaves parents with no choice but to research interventions for themselves. The McPhilemy and Dillenburger (2013) study showed that this was indeed the case for the cohort of parents they interviewed.

All three studies described above point out that some of the information upon which parents base their information is unrealistic. A significant minority (40%) of parents in the Tzanakaki et al. (2012) study, for example, expected their child to be 'cured' or to achieve 'normal functioning' such that they would enter mainstream school within two years. In the McPhilemy and Dillenburger (2013) study, the majority of parents reported that their expectations since starting what they described as 'ABA' had become more realistic and that the emphasis had shifted from 'curing' to seeing ABA as a way of managing challenging behaviour. In addition to over-optimistic perceptions, Tzanakaki et al. (2012) found some 'negative' perceptions including concerns about the rigidity of a behaviourally based intervention, the potential use of aversives, the impact on family life, the costs of running an 'ABA programme', and of the potential isolation of the child from peers.

While there is some research into parental decision making and their experiences of behavioural autism interventions (Green, 2007; Grindle et al., 2009; Tzanakaki et al., 2012), there is little research within the behaviour analysis literature towards understanding the factors that underpin the dissemination of evidence-based practice. Approaches to evidence-based practice from medicine (Rycroft-Malone, et al., 2004), education (Gough, 2004) and public services (Davies, Nutley, & Smith, 2000) point out that what constitutes ‘evidence’ is a complex matter that depends upon the person reviewing that evidence, their role, and their motives. In addition, experiential and anecdotal evidence can be as equally or more important to the decision-making process as evidence, such as randomised control trials, that the scientific community might regard as more robust. Critically, the ‘perceptions’ of decision makers are often the most significant facilitators of, and barriers to, research utilisation. Given the fact that there is a growing body of evidence around behavioural and educational approaches, and that parents play a significant role in the decisions on how to educate their child, understanding their beliefs (whether they have used behavioural education interventions or not) is potentially very important. We could find no research focused on this issue.

Our main aim in the current study was to describe beliefs about ABA in the education and support of children with autism using a sample of parents in the UK. We also explored whether there were any differences in the beliefs of those parents who had experience of behaviourally based interventions and those who had not. Additional demographic data were gathered and associations between these variables and parental beliefs were also explored.

## Method

### Participants

One hundred and seventy-six parents of children with autism agreed to take part in an internet survey; 25 respondents were excluded from the analysis for the following reasons: three of the questionnaires were not completed beyond the consent form; two did not complete the questionnaire beyond the demographics section; nine did not complete the parental perceptions section; and 11 questionnaires were outside of the parameters set by the study (of these, five participants had children over the age of 19; four lived outside of the UK, and two of the questionnaires were not completed by parents). The remaining 151 participants were drawn from all four nations of the UK (England, Wales, Scotland and Northern Ireland), from 101 different local authority/local government areas.

The majority of participants were mothers of children with autism ( $n = 134$ , 89%), 12 (8%) were fathers, three people described themselves simply as “parents” and there were two adoptive parents. The modal age range category of participants was 35—44 years of age (44% of the sample). Educational level was high, with 77 % of participants having an undergraduate degree or post-graduate qualification or equivalent. 75 (49%) participants were in full or part-time paid employment and 53% of participants reported an annual household income of £45,000 (~ €50,000) and above.

Most of the children described were male ( $n=125$ , 83%) and the mean age was 10.34 years (range: 2-19; mode = 11 years). The majority of children ( $n = 99$ , 66%) were described as having a diagnosis of autism; 52% were reported also as having an intellectual disability, and 25% were non-verbal (as opposed to having single word or phrase speech). 54% of children attended a mainstream school or a specialist unit within a mainstream school.

For the purposes of this study (see survey development, below), ABA was deliberately listed as an intervention approach alongside other approaches that fall within ABA (NET, PRT etc.) as this reflects the information parents may find on the internet and the terminology that parents may use to describe the intervention approach used with their child. Participants were divided into groups according to their reported use of behaviourally based approaches. Parents who described use of a behavioural approach including ABA, current and past (n= 97, 64%) were compared to those who had never used a behaviourally based approach (n=54, 36%) See Chapter 4 for details.

### **Survey development**

The survey items used to identify parents' beliefs about ABA were developed by the authors (see Appendix I). These were part of a wider questionnaire which also included standard demographic questions about the parent and their child with autism (see Participants) and a section 'Common approaches to autism intervention', which sought to identify and describe the interventions currently used by parents of children with autism in the UK. A detailed analysis of the number and type of interventions used was the basis of a separate report (Chapter 4).

In developing the items on parents' beliefs about ABA, three types of statements were considered: a) beliefs which may reflect a 'negative', 'poor practice' or erroneous view of ABA such that they may pose a potential barrier to dissemination; b) beliefs that are broadly positive and may facilitate dissemination; and, c) beliefs that may be positive or negative in relation to ABA depending upon one's point of view. Forty-three statements were generated from anecdotal accounts of common perceptions of ABA gathered through the authors' own experiences, and reports in newspapers and on television. The themes about behavioural interventions developed through these media included: an individualised vs. prescriptive

approach, using treats as reinforcers, normalisation or not of autism behaviours, population focus, intensity of intervention, generalisation of skills, problem behaviour, use of punishment procedures, the approach as a 'fad', 'too American', impact on family life, nature of the curriculum, and availability/access. The initial 43 statements were tested against suggestions generated by a small group of stakeholders within the behaviour analysis community, which included parents and professionals. The 17 statements that mapped most closely onto the ideas generated by the stakeholder group were chosen. These final 17 items were subsequently tested in a pilot study of 6 parents. Participants were asked to rate each of the 17 items on a 4-point response scale (strongly agree, agree, disagree, strongly disagree). Each of these items was perceived to be easy to understand and possible to rate in terms of agreement. Thus, all were retained for the main study. A 'not sure' response option was subsequently included at the suggestion of participants of the pilot study.

### **Procedure**

Ethics approval was given by the University of Bangor School of Psychology Research Ethics and Governance Committee. Parents provided informed consent before completing the survey (see Appendix I). Participants were recruited via the internet using email distribution to a variety of parent support groups and via the mailing lists of autism organisations in the UK. Eligible participants included all parents of children and young people up to the age of 19 with a diagnosis of autism, any autism spectrum disorder, or Asperger's syndrome. The survey was open for five months from the end of August 2014 to the end of January 2015.

### **Treatment of data**

Four participants left gaps in the data: three were missing a response to one belief item and one was missing responses to two items. Participants rated each statement on a 5-

point agreement scale (strongly agree, agree, not sure, disagree, strongly disagree). To initially test the direction for scoring each item, we assigned low scores to agreement with potential barriers, and high scores to agreement with potential facilitating factors. Those items that could be either were initially scored as if they were barriers. Based on this initial scoring we calculated a sum total score and then we removed five items with a corrected item-total correlation of below  $\pm 0.39$ . This left us with the 12 items shown in Table 1 that constituted the Parental Beliefs about ABA and Autism scale (P-BAA). Those items that are reverse scored are indicated in Table 1.



Table 1: *Items from the Parental Beliefs about ABA and Autism (P-BAA) scale ranked in order of concordance of response*

	Strongly agree	Agree	Not Sure	Disagree	Strongly disagree
I am uncomfortable, or would be uncomfortable, using ABA because it is not “approved” by the education or health local authorities in the UK.(R)	4	12	42	33	60
ABA is highly individualised and tailored to meet a child’s needs.	50	42	49	7	3
ABA is relevant for children with autism in any Western culture.	50	42	49	3	7
ABA is simply trying to teach to children with autism the skills that all children need to learn.	49	36	55	9	2
ABA does not lead to proper learning because it is based on rewarding and bribing children to do things. (R)	3	19	46	36	47
ABA is chosen by parents who want to cure their children instead of being happy with them just as they are. (R)	5	19	46	42	39
The focus of ABA programmes is on increasing positive behaviour rather than on behaviour problems.	40	40	58	12	1
Once you start on an ABA programme, it is very difficult to reduce or stop the programme. (R)	1	12	69	39	30
ABA is based on a highly structured curriculum that every child has to follow (R)	4	14	67	49	17
Children who have been taught using ABA methods are often robotic in their responses. (R)	4	11	73	26	37
ABA places pressure on family life. (R)	17	42	60	19	13
ABA can be used successfully with older children and teenagers.	29	31	83	6	2

(R) Items which have been reverse scored

## Results

Using a summed total of all 12 items (including appropriate reverse scoring of the items shown in Table 1), the P-BAA was examined for internal consistency and re-examined for corrected item-total correlations. Cronbach's alpha was very good at 0.91, there were no corrected item-total correlations below 0.78, and all items were positively correlated with the corrected total score. The 12-item P-BAA therefore had a maximum possible score (most positively disposed to ABA) of 60 and the lowest possible score was 12. The mean score of all participants in the current study was 42.81 and the scores ranged from 23 – 60.

Beliefs overall for the sample of parents were first examined descriptively for all of the P-BAA items (Table 1). There were only two items for which more than half of the participants recorded either 'agree'/'strongly agree' or 'disagree'/'strongly disagree': 62 % of all participants disagreed or strongly disagreed with the statement '*I am uncomfortable, or would be uncomfortable, using ABA because it is not "approved" by the education or health local authorities in the UK.*'; and 61% of all participants agreed or strongly agreed with the item '*ABA is highly individualised and tailored to meet a child's needs.*'

The item which resulted in the greatest uncertainty with 83 (55%) participants choosing 'not sure' was: '*ABA can be used successfully with older children and teenagers.*'; and the item over which there was the most divergence was: '*ABA places pressure on family life.*' in which 40% of participants either strongly agreed or agreed with the statement, 40% were not sure, and 20 % disagreed or strongly disagreed.

Statistical analysis was carried out in two stages. First, we explored differences in parental beliefs about ABA by intervention use and by parent and child characteristics. We found a significant difference ( $p < .001$ ) and large effect size on the total P-BAA score between parents using a behaviourally based approach including ABA either currently or in

the past (n=97) and those who had never experienced a behaviourally based approach (n=54) ( $t=7.775$ , Cohen's  $d = 1.14$ ). Repeating the analysis for each individual P-BAA item level we found a significant difference ( $p<.001$ ) for all items except *The focus of ABA programmes is on increasing positive behaviour rather than on behaviour problems*. For the remaining 11 items, those parents with current or past experience of a behavioural intervention had more positive beliefs towards ABA.

Associations between dichotomized demographic variables and the total P-BAA score were examined using t tests (see Table 2). In terms of parent characteristics, significant associations were found between total P-BAA scores and parent education (higher scores for those with an undergraduate degree and above). Exploring child characteristics, significant associations were found between total P-BAA scores and child diagnosis (higher scores for those with an 'autism' diagnosis), child intellectual disability (higher scores for those with an additional intellectual disability), and similarly with child language skills (higher scores for those described as non-verbal). Child age was also negatively correlated with the total P-BAA score ( $r = -.16$ ,  $p = .049$ ), and total family income was positively associated with the total P-BAA score ( $r = .30$ ,  $p < .001$ ).

Table 2: Mean, standard deviation, t-value and effect size for parental beliefs by parent and child characteristics

<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>t</b>	<b>Effect size Cohen's d</b>
Parent age 44 & under/ Parent age 45 & over	78 73	43.96 41.59	8.50 8.86	1.674	0.27
Parent degree education & above/ Education below degree level	114 35	44.33 38.20	8.92 6.31	3.779**	0.73
In paid employment/ Not in paid employment	75 76	41.84 43.79	8.08 9.28	-1.379	0.22
Diagnosis autism/ Diagnosis "other"	99 52	45.24 38.21	8.92 6.18	5.072**	0.92
Intellectual disability/ No intellectual disability	78 71	44.28 41.21	8.81 8.45	2.162*	0.35
Child non-verbal/ Single word & phrase speech	38 112	46.12 41.74	8.26 8.67	2.724*	0.52
Mainstream school/ Special school & Other	82 68	41.56 44.22	8.59 8.74	-1.869	0.31

\*\*  $p < .001$  \*  $p < .05$

In the second stage of the analysis, multiple regression analysis was used to explore predictors of total P-BAA scores within the sample. We used all demographic variables that showed significant univariate associations with total P-BAA scores along with a single dichotomous variable summarizing their experience with behavioural educational approaches (see earlier) (Table 3). From Table 3 it can be seen that experience with behavioural educational approaches, the child's diagnosis, total household annual income, and parental education were significant predictors of total P-BAA scores.

Table 3: *Regression analysis of parental beliefs about ABA*

<b>Predictor</b>	<b><math>\beta</math></b>	<b><i>p</i></b>
	-.409	<.001
Use of a behavioural education approach (current & past)		
Child age	-.092	.196
Child's diagnosis	-.232	.003
Intellectual disability (yes/no)	0.036	.622
Child's language use	.029	.686
Parental education	-.158	.029
Household annual income	.223	.003

Overall model:  $F = 15.019$ ;  $R = 0.658$ ;  $R^2$  (adjusted) = 0.404

### Discussion

Using a new scale (the Parental Beliefs about ABA and Autism scale [P-BAA]) developed by the authors, this study was a first attempt to identify and quantify parents' beliefs about ABA as an approach to the education and support of children with autism in the UK. Using these data, we explored whether there were any differences in the beliefs of those parents who had experience of behavioural educational interventions and those who had not, and whether it was possible to identify other demographic predictors of P-BAA scores. Parental perceptions may play a part in the dissemination of evidence-based practice in general and there is anecdotal evidence to suggest that some of the beliefs about ABA held by parents in the UK may act as barriers to the dissemination of behavioural educational approaches.

It is interesting that the P-BAA item to which the majority of responses were most similar (disagree/strongly disagree) across all parents was: '*I am uncomfortable, or would be uncomfortable, using ABA because it is not "approved" by the education or health local authorities in the UK*'. This finding is consistent with the experiences described in Grindle et al. (2009) of parents trying to get funding for ABA programmes, often having to resort to

taking their local authorities to tribunal because they could not agree. In addition, some parents may be reluctant to use potentially evidence-based ABA interventions if they perceive that statutory services do not approve.

The P-BAA item over which there was least agreement '*ABA can be used successfully with older children and teenagers*', suggests that a lack of understanding about the applicability of behavioural educational approaches across the lifespan and may serve as a barrier to dissemination.

Previous research has also identified perceptions around the rigidity of ABA programmes resulting in 'robotic' behaviour (Tzanakaki et al. 2012). In the current study, we found that few parents agreed or strongly agreed with the items '*Children who have been taught using ABA methods are often robotic in their responses*' and '*ABA is based on a highly structured curriculum that every child has to follow*' suggesting that these may not be widely held beliefs. Tzanakaki et al. (2012) also highlighted the intrusion of ABA on family life as a concern although the vast majority of families said that they would still recommend ABA to other parents because of the potential benefits. We found that less than half of the parents agreed or strongly agreed with the item '*ABA places pressure on family life*'.

A relatively large number of parents were unsure about their beliefs in response to several of the P-BAA items, and some parents did have negative beliefs about ABA. Further investigation into the qualitative nature and relative importance of parental beliefs about ABA is needed. Critically, we have no information concerning the relative weighting of parents' beliefs in decision making about interventions nor whether certain beliefs serve as barriers to dissemination of ABA approaches. For example, parents may agree that ABA places pressure on family life but for some this may be worth enduring because of the real or

anticipated benefits (Tzanakaki et al., 2012) – for others this may be a decisive factor in deciding not to use ABA.

Previous or current experience of a behavioural education intervention was the strongest predictor of parents' beliefs about ABA and was associated with differences in ratings for 11 of the 12 P-BAA items. Given that our design was a cross-sectional survey, we cannot be sure whether more positive beliefs about ABA contributed to parents' intervention choices or whether exposure to behavioural interventions may lead to more positive beliefs about ABA. However, if the latter is true it would suggest that additional education for parents about ABA intervention methods and perhaps experiential training in the intervention strategies may assist parents in making intervention choices. Indeed, such experience and training might be helpful for parents making a decision about any autism intervention approach.

In addition to exposure to ABA interventions, child diagnosis, parental education and household income were also significant predictors of parental beliefs about ABA. Green et al. (2006) found that ABA tended to be used by families of children at the more severe end of the Autism spectrum, and we found (Chapter 4) a similar association. Several studies suggest (Green 2007, Tzanakaki et al. 2012, McPhilemy & Dillenburger, 2013) that parents are having to seek out information about approaches to autism intervention themselves. Therefore, socio-economic factors such as parental education and family financial resources may influence parental understanding of, and beliefs about, the available intervention choices especially where there may be financial costs to the families themselves (Grindle et al., 2009).

This is the first study to describe and explore parental beliefs about ABA amongst parents of children with autism in the UK, and we reported preliminary data on a measure of

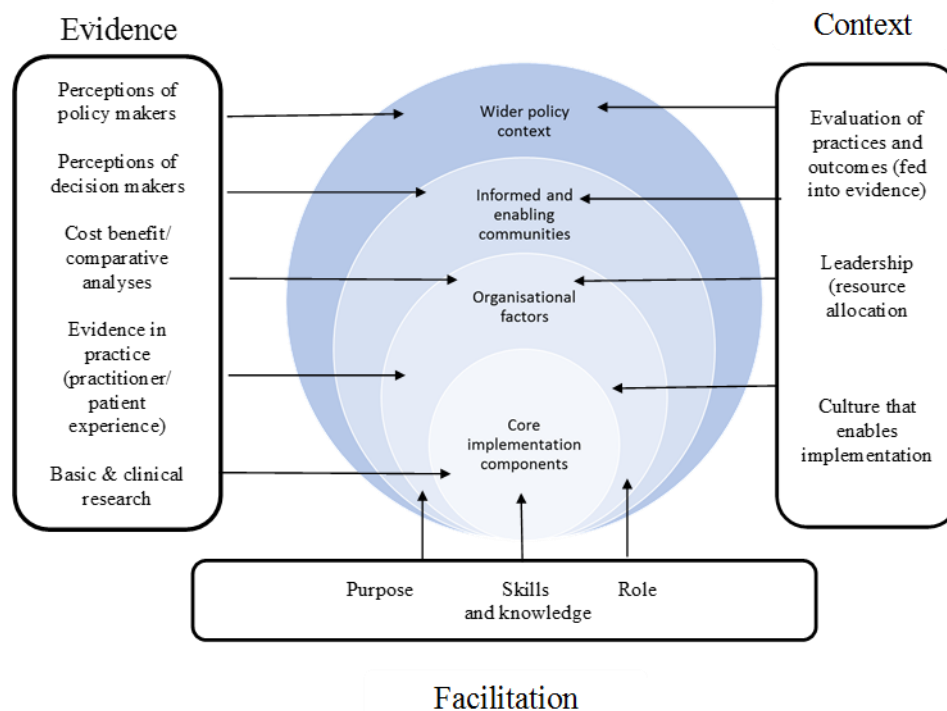
parental beliefs (the P-BAA) that could be used in future research. To interpret the findings, a number of limitations need to be born in mind. First, although we used the term most likely to be familiar to parents ('ABA'), we do not know about parents' understanding or knowledge about ABA. Arguably, it is more important to understand their beliefs independent of a core understanding of ABA. Our data also suggest that improved understanding of ABA may be associated with more positive beliefs about ABA (if we assume understanding is increased through direct exposure to behavioural educational interventions). Second, the present data are not likely to be representative of all parents of children with autism in the UK. The survey was internet-based, likely excluding some families. Although we did survey parents who were and were not using behavioural interventions, the survey itself was explicitly focused in several sections on behavioural interventions. Thus, parents with a reasonably positive perception of ABA may have been more likely to participate.

In light of the increased role that parents are having to make in respect of intervention choices it is clear that we need to understand the relevance of parental beliefs in decision making and the factors that influence this. The implications for educational practice and policy making are clear. Once we understand these factors we can more effectively provide parents with the information and experience that they need to be able to make informed decisions. Further investigation is needed.



## Chapter 6

### ***‘We’re just putting sticking plasters on things’*: Experiences of commissioners of services to support and educate children and young people with autism**



The fourth study, reported in chapters 6 and 7, shifts attention away from parents and their beliefs about ABA to another group of consumers - commissioners of services in the support and education of children with autism. This study is the first to attempt to understand the experiences and perceptions of those involved in the commissioning of services. As with Chapters 4 and 5, there is overlap between chapters 6 and 7 in terms of the method and participants described. Chapter 6 begins with an exploration of the commissioning process more broadly in an attempt to understand the wider policy and context in which commissioning decisions in respect of autism support and education are made.

### **Abstract**

Recent changes in UK Special Educational Needs and Disability (SEND) policy and legislation, coupled with a shift from a focus on the procurement of services to strategic commissioning, is changing the role that commissioning plays in public sector education service delivery. Research suggests that professional experience and local context is more likely to influence decision making in respect of the commissioning of services than evidence-based practice. Considering the role that commissioning is expected to play in the dissemination of services and interventions, there is surprisingly little research into understanding the processes and experiences of those involved. In the present study, 12 people involved in the commissioning of services to support and educate children and young people with autism in the UK were interviewed with a focus on their experiences of the commissioning process. Thematic content analysis was used to analyse the data. Four themes emerged: i) variation in commissioning; ii) primary drivers of commissioning are shared; iii) the drivers of educational provision create tensions within the commissioning system; iv) everyone is frustrated with the commissioning system. The findings suggest a clear need for specific guidance in respect of the commissioning of autism education services.

**Key words:** SEND, autism, education, commissioning,

## Introduction

Autism is a life-long neurodevelopmental disorder characterised by difficulties with social communication and interaction and repetitive behaviours and interests (Lai, Lombardo, & Baron-Cohen, 2014). It is estimated to affect approximately one percent of the population of children in the UK as in other countries (Baird et al., 2006), and approximately half of children with autism also have an intellectual disability (Totsika et al., 2011). In the UK, parents report that support for children with autism is typically delivered through education services (Chapter 4). For some, this will be through mainstream provision but for many support will come from Special Educational Needs and Disability (SEND) services.

In 2014, the Children and Families Act introduced reforms to SEND support in England largely in response to the Lamb Inquiry (2009) which was established to investigate a range of ways in which parental confidence in the SEND system of assessment and provision might be improved. The inquiry highlighted the finding that positive child outcomes are more likely when parents are engaged as partners in the support of their children (Desforges & Abouchaar, 2003; Goodall & Vorhaus 2011; Humphrey & Squires 2011). The reforms also introduced Education, Health and Care (EHC) plans for children and young people aged up to 25 who need more support than is available through SEND support. EHC plans have replaced Statements of Special Education Needs and Learning Difficulties Assessments, and necessitate the joining up of services across health, social and education provision. A further characteristic of recent reforms is that head teachers are increasingly doing their own commissioning.

The SEND Code of Practice (2015) stipulates that ‘commissioning arrangements should be based on evidence about which services, support and interventions are effective’ (p.46) when supporting children and young people with SEN or learning difficulties. That sounds straightforward. It is not. UK government policy over the past decade has focused on

“commissioning” as a cornerstone of public sector reform, placing an emphasis on population needs, establishing a market of suppliers, and developing innovative and integrated solutions to health, social care and education provision (Rees, Miller & Buckingham, 2014). This focus places additional responsibilities on commissioners who in previous decades were primarily responsible for “procurement” - the processes involved in purchasing goods or services (MacMillan, 2010). The UK government currently outlines eight core principles of commissioning of which only three are about procurement; the other five relate to commissioning strategy. The principles do not include any reference to evidence-based practice. Yet evidence-based practice is often cited in commissioning guidelines such as the National Institute for Health and Care Excellence (NICE), Support for Commissioning for Autism, issued in January 2014, which advises that ‘local authorities and clinical commissioning groups (CCGs) should explore what psychosocial support is available locally ... and should check that this support is evidence-based’ (p.12). In addition, although there are no specific guidelines in England for the commissioning of services in autism education, the SEND Code of Practice further states that in respect of joint commissioning arrangements, local areas should refer to ‘up-to-date information on research and guidance about good practice’ (p.46) including NICE guidance.

The evidence-based policy movement suggests that decision making based upon research evidence is key to improving policy making and practice (Hammersley, 2001). Hammersley argues, however, that debates around evidence-based practice often focus on research evidence at the expense of other forms of evidence including professional experience. Considering the role that commissioning is expected to play in public sector services there is surprisingly little research into understanding the processes and experiences of those involved. This seems short-sighted when professional experience is likely to influence decision making. In a review of commissioning in children’s services funded by the

Department for Education, McNeish, Scott and Maynard (2012) suggest that whilst there is considerable research on the perspectives of commissioning from others including volunteer provider organisations or recipients of services, the perspectives of commissioners themselves is 'largely absent from the literature' (p.1). A recently published review of the SEND reforms (SEN Policy Research Forum, 2016) based on a one-day policy seminar held in June 2016 includes a short report by a SEN Officer (Harrison, 2016) based on his own experiences and a small-scale "survey" in 2 regions with SEN office liaison groups. No further details are given about the nature of the study, whether it was questionnaire or interview based, or of its participants. The report suggests that SEND reforms 'have been largely received as a step in the right direction, but many local areas are still struggling to make the changes they had hoped for' (p.33), and that the response to the changes varies across local authorities. The SEN Policy Research Forum report summarises the views of those surveyed in the following bullet points: 'difficult; a continuing journey with much more to do, stressful, challenging, fraught, and a little disappointing because a big system change has delivered only partial success' (p.33). The focus of this report, however, was on SEND reform from the perspective of SEN officers rather than their experiences of commissioning.

Some studies have been conducted in health care commissioning, most of them interview based, with an emphasis on describing process (Wye et al., 2015) or looking at commissioning from the point of view of third sector organisations engaging with the commissioning process (Sands et al., 2016). These studies have variously described health care commissioning as 'messy and fragmented' (Wye et al., 2015, p.2) and suggest that meetings are the basis for decision making. In a study which involved interviewing 52 clinical and managerial commissioners, sitting in and observing 14 commissioning meetings, and reviewing commissioning documentation, Wye et al. (2015) examined the way that commissioners make decisions. They found that pragmatism is necessary. Referring to the

‘art of commissioning’ (p.5) they described a process of decision making based upon competing demands, priorities, power relationships and, critically, personal experiences. Local evaluations of services were more important than research evidence, and commissioning as a result varied from one commissioning group to another.

Rees et al. (2014) interviewed six commissioners as part of a study looking at the commissioning of local mental health services from the third sector. Their findings echoed those of Wye et al. (2015), describing commissioning occurring in an ‘ad hoc’ fashion (p.33). This was because although participants acknowledged the importance of the strategic principles of commissioning, in most cases the eight core principles were not yet joined up to form a coherent process. There was still a focus on procurement driven by need, and individual experiences and contacts continued to be influential.

The experiences of those involved in the commissioning of services in the support and education of children with autism in the UK have also not been extensively explored in the research literature. A National Autistic Society (NAS) report in 2006 surveyed local authorities and identified a ‘confusion and lack of clarity about the use of autism-specific services’ (p.2). This was less about commissioning; rather, it reflected the lack of agreement about what constitutes evidence-based practice in respect of autism interventions. More recently, the NAS has published a review of the extent to which the SEND reforms are meeting the needs of children with autism (NAS, 2016). However, this was based on the experiences of parents rather than commissioners. The findings echoed those of the SEN Policy Research Forum cited above: that reforms, although welcomed, are not yet delivering what they have set out to achieve. One of the key recommendations in the NAS report states ‘The Department for Education should develop a guide to showcase good practice in commissioning local support that children on the autism spectrum need’ (p.6).

Our aim in this study was to identify and explore the experiences and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism in the UK. For the purposes of this study, “commissioning” included identifying, securing and monitoring services that meet an individual’s needs and the commissioning of services was in respect of the support and education of children and young people (up to the age of 25) with autism. Involvement in commissioning may be as part of, or on behalf of a local authority, a school or group of schools, or education otherwise such as home or community based programmes.

## Method

### Participants

Twelve professionals involved in the commissioning of services in the support and education of children with autism in the UK were interviewed between May and September 2015. This included four head teachers and eight local authority commissioners (see Table 1 for further details). Participants came from eight different local authorities in England.

Table 1: *Participant information*

<b>'Name'</b>	<b>Job Title</b>	<b>Setting</b>
Alan	Service manager (autism outreach)	Local authority
Brian	Head Teacher	Special school (Primary – Post 16)
Claire	Service Manager, Early Help	Local authority
Dawn	Designated clinical officer	Local authority (joint commissioning)
Emma	Service manager	Local authority (joint commissioning)
Fraser	Care manger Education	Local authority
Gail	Head Teacher	Special school (Secondary)
Helen	Manager Disabled Children’s Services	Local authority (joint commissioning)
Isabelle	Joint Commissioning Manager	Local authority (joint commissioning)
Jenny	Head of SEN Assessment & Placement	Local authority
Keith	Head Teacher	Mainstream school (Primary) with autism resource base
Lucy	Head Teacher	Special school (Primary – Post 16)

## **Research Design**

This study was based on semi-structured interviews which were analysed using thematic analysis (Braun & Clarke, 2006). Thematic analysis with a rich description of the data set was chosen because to the best of our knowledge this was the first time that the experiences of this population were being explored; and because, although they share a common involvement in, and experience of commissioning, the population was not entirely homogenous. The methods used aimed to identify the nature, quality and diversity of these experiences. Themes were identified in an inductive or 'bottom up' way as described by Frith and Gleeson (2004) in that themes identified were grounded in the data rather than trying to fit into an existing theoretical framework. Participants were viewed as the experts in their own experiences.

When using thematic analysis, the researcher plays an active role both in the interview which is a dynamic process, as well as the interpretation of data. Indeed, that interpretation begins during the interview as the researcher chooses the ideas or issues for further exploration. Throughout the study I maintained a reflective journal to help ensure that the analysis was as transparent as possible (Ortlipp, 2008). I have a background in supporting children and young people with autism. My research interests are the dissemination of evidence-based practice and I have my own perceptions and experiences as a recipient of the commissioning process. It is recognised that the analysis was influenced by this perspective. To minimise this, potential biases were acknowledged and bracketed within the data and put aside during the analysis. To further reduce bias, one of my supervisors was involved in the interpretation of the interviews and checked the reliability of the coding. The interpretations of themes were shared and discussed amongst research team throughout the period of the study.



## **Procedure**

Ethics approval was given by Bangor University School of Psychology Research Ethics and Governance Committee (see Appendix J). A purposive sampling method was used to recruit participants. I contacted key professionals in the field of autism and, based on their recommendations, 35 letters (with an information sheet, and consent form, see Appendices K and L) inviting local authorities and head teachers to participate were sent by both post and email. When the consent forms were returned, the participants were contacted to arrange a suitable time and place for the interview. Participants were given the option of being interviewed by telephone or face-to-face. All interviews were conducted by me during working hours and in the participants' work places, and all were by telephone. In addition to the written consent, at the start of each interview, verbal consent was obtained for the interviews to be recorded. Interviews were recorded on a digital recorder.

A semi-structured interview schedule (Appendix M) including follow-up questions and prompts was developed by the research team. Participants did not see a copy of the interview schedule but were given an overview of the topics to be explored in the participant information sheet. The interview was designed to explore the experiences and thoughts of those involved in the commissioning of interventions in the support and education of children and young people with autism. Questions were open-ended to allow the interviewer to explore issues raised during the interviews. Participants were asked about their roles, the ways in which they were involved in commissioning more broadly, before going on to discuss their experiences of commissioning autism services and interventions. Interviews ranged between 21 and 61 minutes and were an average of 37 minutes.

## **Qualitative analysis**

The recorded interviews were transcribed verbatim. Transcribing meant that all datasets had been listened to and read several times before whole data analysis began.

Thematic analysis was conducted following the six stages outlined by Braun and Clarke (2006): familiarising yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, producing the report. The analysis started with the whole dataset being read through twice without any note taking. On the third reading, initial observations were noted in the margins and on post-it notes. Codes were assigned to each of the observations. This process was repeated until I was confident that all potential themes and associated sub themes had been identified. Theme tables were then compiled for each transcript along with verbatim quotes associated with each theme. Even as this exercise was completed, adjustments were made to themes and to the subthemes. The 12 individual theme tables were then compiled into a master theme table, again with accompanying quotations. Distilling the themes from the master theme table into defined and named themes was achieved through a process of developing thematic maps which attempted to identify hierarchies of themes and commonalities and relationships between themes. These were checked against the master theme table and the interview transcripts to ensure that they were a fair and, as far as was possible, objective representation of participants' experiences of commissioning intervention in the support and education of children and young people with autism.

## **Results**

The interviews were conducted at a time of public sector reform in the UK and changes within special education in England. They were also set against the backdrop of a climate of economic austerity. As a result, the commissioning process is becoming increasingly complex. This was reflected by a lack of confidence on the part of many participants at the outset, that they were the best people to talk to: 'I'm not sure how much help I'll be' (Emma<sup>9</sup>, Local authority), 'I think it's going to be a very short conversation'

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<sup>9</sup> Names have been changed

(Jenny, Local authority), 'I may not be the best person to speak to' (Dawn, Local authority).

Others were apologetic about the quality of information provided, aware, perhaps, of the shortcomings of the characteristics that they were describing.

I am sorry that ... haven't been very eloquent at certain points and er I guess that might actually reflect a lack of clarity of my own thinking. (Brian, Head teacher)  
I am not sure whether I am entirely going to be able to provide much for your uh you know ah or your research. But its uh because we're sort of on the edge of that in some ways (Claire, Local authority)

Despite these misgivings, participants went on to provide rich data. Four themes emerged: i) variation in commissioning; ii) primary drivers of commissioning are shared; iii) the drivers of educational provision create tensions within the commissioning system; iv) everyone is frustrated with the commissioning system.

### **Theme 1. Variation in commissioning**

There are no standard processes or national guidance in respect of commissioning interventions in the support and education of children and young people with autism. The commissioning process varies across and even within local authorities. Some participants explained that their current processes were different compared to previous work in other local authorities, or that discussions with counterparts in neighbouring authorities highlighted differences. A head teacher talked about annual reviews illustrating the differences between the four local authorities from which her pupils come. One participant from a local authority with seven Core Commissioning Groups (CCGs) within that local authority described them as 'like they're different countries' and talked of the difficulties created by each having a different approach.

We have seven CCGs, they quite often all want to do different things. So we've currently got the situation where... one CCG says, 'I think we'd just like to tweak what we do now;' other CCGs say, 'Well, we'd like to start afresh and do something completely new and brand new.' (Helen: Local authority)

Participants did not talk about the reasons for these differences but did acknowledge that legislative change is contributing to changes in the commissioning process. It was generally agreed that the joining up of education and healthcare necessitated by the change to EHC plans introduced in 2014, was a good principle, as well as parents having greater say in the choices available to them:

the whole thing about the Education Health and Care Plan, the whole premise of that is absolutely fantastic (Gail: Head teacher)

it will strengthen parents cause and that's not a bad thing (Alan, Local authority)

However, the changes have also caused practical difficulties in terms of the commissioning of services. Joint commissioning necessitates education, social and healthcare services working together. This is further complicated with head teachers increasingly being responsible for commissioning for their school or group of schools. Although the changes are welcomed it is difficult to achieve a joined-up approach with multiple commissioning arrangements.

Erm, well, obviously, with the joint commissioning duty, er, I think there is a good opportunity to, to be looking at that collectively. I don't think we're there yet. I think that's going to take quite a long time for people to really get their heads round what does that mean in practice (Isabelle, Local authority)

Where we are now is that we have multiple commissioners in the context of schools are all commissioners themselves, they hold their own budgets and we have potentially multiple providers so that is very hard when you have one commissioner and lots of providers you can have a comprehensive strategy and it can all join up, and if you've got multiple commissioners and one provider then that is solvable when you have multiple commissioners and multiple providers the risk of post code lottery is ... high (Emma, Local authority)

## **Theme 2: Primary drivers of commissioning are shared**

Although the commissioning process varies, several significant drivers of education service provision were common across all participants. Broadly, these were duty to the public purse, children's needs, and parental requests. These drivers are summarised in (Table 2).

Table 2: *Primary drivers of commissioning*

<b>Primary drivers of commissioning</b>	
<b>Duty to the public purse</b>	Lucy (HT*) <i>It, it comes down to finance in the end.</i>
	Alan (LA**) <i>I think the big driver, the central big driver, obviously keeping our kids in the middle of this all, the big pressure of course is funding</i>
	Jenny (LA) <i>And there's always the duty to balance the public purse</i>
Avoiding out of area placements	Brian (HT) <i>you know at the end of the day that's its core purpose is to try and make the provision that is needed and keep that young person within the local community and the locally available services.</i>
	Emma (LA) <i>Yes we're trying to avoid that absolutely we're trying to avoid out of authority placements or hospitalization</i>
	Dawn (LA) <i>what we've what we've realized is that as we've probably saved quite a lot of money on these kids going out to out of area placements? ...because its enabled, the programme has enabled them to stay</i>
Standard provision must be considered first, and this includes the need to fit into mainstream	Dawn (LA) <i>and all local services would have been exhausted before we would have agreed to commission a bespoke</i>
	Claire (LA) <i>it would be using alternative provision of varying sorts um to try and support that um and sort of to add to the general curriculum</i>
	Emma (LA) <i>actually come off it and go back just to ordinary school based support</i>
<b>Children's needs</b>	Fraser (LA) <i>the spot purchasing arrangements that the care management team does, that would arise as a result of an individual needs assessment</i>
	Helen (LA) <i>No, we would very much do that on a, on an assessed-need basis.</i>

Severe challenging behaviour leading to family/placement breakdown	Brian (HT) <i>The criteria for CNG is that either the home or the school setting is at risk of breakdown.</i> Dawn (LA): <i>in general what we've found is when a school placement breaks down the home environment rapidly collapses afterwards</i>
Autism and mental health difficulties	Brian (HT) <i>over the last couple of years we've been saying actually there's a there is a need for provision for more able youngsters with autism and mental health difficulties</i>
Transitions	Fraser (LA) <i>and we have a particular focus at the moment around transition: so this is people between the ages of 16 and 25 .....We know that, you know, 59% of our transition all have a diagnosis with autism</i>
<b>Parent request</b>	Helen (LA) <i>And we also have those conversations with parents. So we have a, a ..... commissioning group that has parental representation on it as well, so that, if we're trying to decide on priorities, we'll get their views and their influence on that as well.</i>

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\*HT – Head teacher

\*\*LA-Local authority

The duty to the public purse was key:

I think the big driver, the central big driver, obviously keeping our kids in the middle of this all, the big pressure of course is funding (Alan, Local authority)

As shown in Table 2, duty to the public purse was the underlying factor behind three additional drivers: the need to avoid out-of-area placements; the need for standard provision to be considered first (i.e., services that are a part of the local offering); and for services to fit into or sit comfortably alongside mainstream provision. Avoiding out-of-area placements was critical:

so um of course in commissioning from a financial perspective it saves a huge amount of money.....Absolutely phenomenal ... Keep them local rather than being out of area (Emma, Local authority)

Two participants also identified additional costs associated with out-of-area placements. These included transport costs, ‘over a million pounds is going on transport’, and the hidden costs of not building upon the skills within the local authority, which in turn makes future out-of-area placements more likely. Cost also lies behind the need to consider the standard offering that exists within the local authority before exploring the commissioning of alternative provision outside that standard offering. Participants talked about needing to ‘exhaust’ local services before commissioning anything bespoke, and that one of the aims of standard provision is to fit into mainstream services (i.e., that it can be delivered alongside mainstream provision or, if not, that reintegration of a child into mainstream schooling after having received extra support is a key goal).

All of those interviewed spoke of children’s needs as a key driver of commissioning. This was spoken of at two levels – as a generally understood principle of commissioning, but also more specifically in relation to either individual cases or cohorts of children. Table 2 shows the three groups of children and young people with autism that were highlighted: those who present with ‘significantly challenging behaviour’, those with autism and mental health

difficulties, and those transitioning from child to adult services. The trigger for commissioning services for those who presented with challenging behaviour was often family or placement breakdown:

it's likely to be where the family are really struggling with a young person, that maybe their behaviour has become a lot more difficult, maybe there's been some new factors that have come in, they've started behaving in a particular way that hasn't, the family hasn't seen before, erm, and it's difficult to manage that. (Helen, Local authority)

Placement or family breakdown was also often an underlying factor behind parental request (i.e., that parents asked for services when they could no longer cope). The need to respect parental requests, like children's needs, was described as a general principle and not open to question.

As far as we're concerned we would always be wanting you know to be working with parents and linking that into you know parenting strategies as well so it isn't just doing something to the child it is actually working with the child and the family (Claire, Local authority)

Parental request was not just seen as important in principle, it was acknowledged that when parents are supportive of the help that their children are receiving, that help is more likely to be effective:

and there was a great enthusiasm coming from the parents of the children that were here, and I think that, erm, you know, when you've got enthusiasm of parents, and parents are happy, it would, with the school that, you know, the children are going to, and particularly, you know, these children, they haven't had an easy time, erm, and the parents haven't had an easy time. Erm, you know, the, the, parents that have had to go to tribunal after tribunal after tribunal. Erm, and I think that is part of the success that you embrace those parents and take them with you. (Lucy, Head teacher)

### **Theme 3: The drivers of educational provision create tensions within the commissioning system.**

Participants were consistent in their responses that the right provision meets a child's needs, meets parental requests, keeps the child within their community, and involves joined



up working across services and within the family home. It was clear, however, that meeting these criteria whilst trying to satisfy funding and organisational considerations creates tensions. Participants observed that the respective priorities of each of the primary drivers of provision (duty to the public purse, parental requests, and children's needs) can be incompatible. Examples given included instances when parental request may not, in the views of the local authority, necessarily best meet a child's needs, and the fact that the need to avoid costly out-of-area placements is only practical if local services can adequately meet the support needs of children and young people. This is difficult when many local authorities have been reducing, rather than investing in, support services.

I think that's the bit that I sort of wanted to challenge .... that question not just to follow the parents request and to try to find some justification for that to try to produce a windscreen that would identify where that child is on that windscreen that is requiring an intervention (Alan, Local authority)

I think probably one of the problems that we encountered is establishing this provision whilst local authority resources are diminishing (Keith, Head teacher)

The tensions were also clear when the standard offering, underpinned by pressures of funding, has not met children's needs or is inadequate:

quite often they'll [children] come with us and they may have had a Statement of Special Educational Needs for many years before they come to us. And, when you delve back into their history, or at least when we've done this piece of research, we've discovered, time and again, that a lot of the children that end up in our school did have speech, language and communication issues identified as young children, and, either, a six-week intervention happened, and that was it; the speech and language therapist went away (Gail, Head teacher).

In terms of a repertoire of things from which local services that can be drawn upon through commissioners I think that it is a fairly limited pool of resources (Brian, Head teacher)

These tensions between funding, parental requests, and children's needs might have not been as apparent had participants been able to resolve them. Many referred to 'others' to whom they had to refer and who clearly also had a part to play in decision making but may have been removed from the day-to-day pressures of meeting children's or parents' needs.

But, again, trying to get people to understand that, actually, if we don't do some of this intervention, what happens is people end up in very expensive residential placements, which we all have to contribute to (Helen, Local authority)

just recently you know we are clashing with higher management levels within my county (Alan, Local authority)

although there are some joined-up governance, a lot of the decision-making processes aren't joined up (Fraser: Local authority)

There was a recognition, however, of a need to be pragmatic in the current economic climate.

One participant summed up the process of balancing competing demands as a 'political game'.

#### **Theme 4: Everyone is frustrated with the commissioning system**

Whilst many participants could take a pragmatic view of the competing demands that they had to deal with, their feelings of dissatisfaction with the commissioning system were very evident throughout the interviews. There was a strong sense from participants of wanting to do their best for children with autism and their families and frustration when this was compromised.

and in playing that political game commissioners like myself have to, I have moved on so far sadly from just being a teacher of children with autism to playing that political game is (*unclear*) appalling for the families (Alan, Local authority)

They also acknowledged that their own dissatisfaction with the system is shared by others and some expressed feelings that they were the scapegoats for criticism from all sides - those managing budgets, other departments, and parents.

when you're in the local authority, you take a bashing quite a lot. People, you know, people can't believe that you do this because you want to make a difference to children's lives. They think you're a bureaucrat and you want to torture families. (Jenny, Local authority)

We, we can fix short-term issues, but, actually, we're just putting sticking plasters on things. (Isabelle, Local authority)

Many felt dissatisfaction with other parts of service provision (those in education were frustrated with mental health services and vice-versa) or the fact that the planned joined-up approach is not yet working.

despite the fact we're all saying we need to work outside our silos now, and the child is at the centre of all of this, which is absolutely wonderful ... erm, the processes for that to happen haven't moved, and I think, somehow, it's almost... the mind, the silo mindset is so entrenched in some areas of children's services that getting them to work collaboratively is going to prove to be impossible. (Gail, Head teacher)

There were also clear gaps in provision highlighted by participants; in the sense that either standard provision is not meeting the needs of a cohort of children with autism - such as those with mental health issues, and those about to transition from child to adult services, or because the changes to commissioning has led to services being shut down and not replaced.

For example, we had one particular area where there was no diagnosis service for eight- to 11-year-olds, because our, our, erm, speech and language therapy service for that area did it up to eight, and the mental health service did it over 11; there'd been a gap in the procurement... erm, which had fallen out of, erm, the, the move from PCTs to CCGs. (Isabelle, Local authority)

### **Figure 1: The characteristics of commissioning**

Figure 1 illustrates the relationship between the themes outlined above. Those involved in the commissioning process share a backdrop of changes in legislation, three core drivers of provision and their associated characteristics. The areas of potential tension are highlighted. But whilst all areas may share these drivers of provision and any tensions between them, the local responses appear to differ. The impression conveyed by participants was one of professionals embracing the core principles of commissioning as well as the more recent SEND reforms and commitment to providing provision that meets child and family needs; but acknowledging that a big gap remains between best and actual practice.

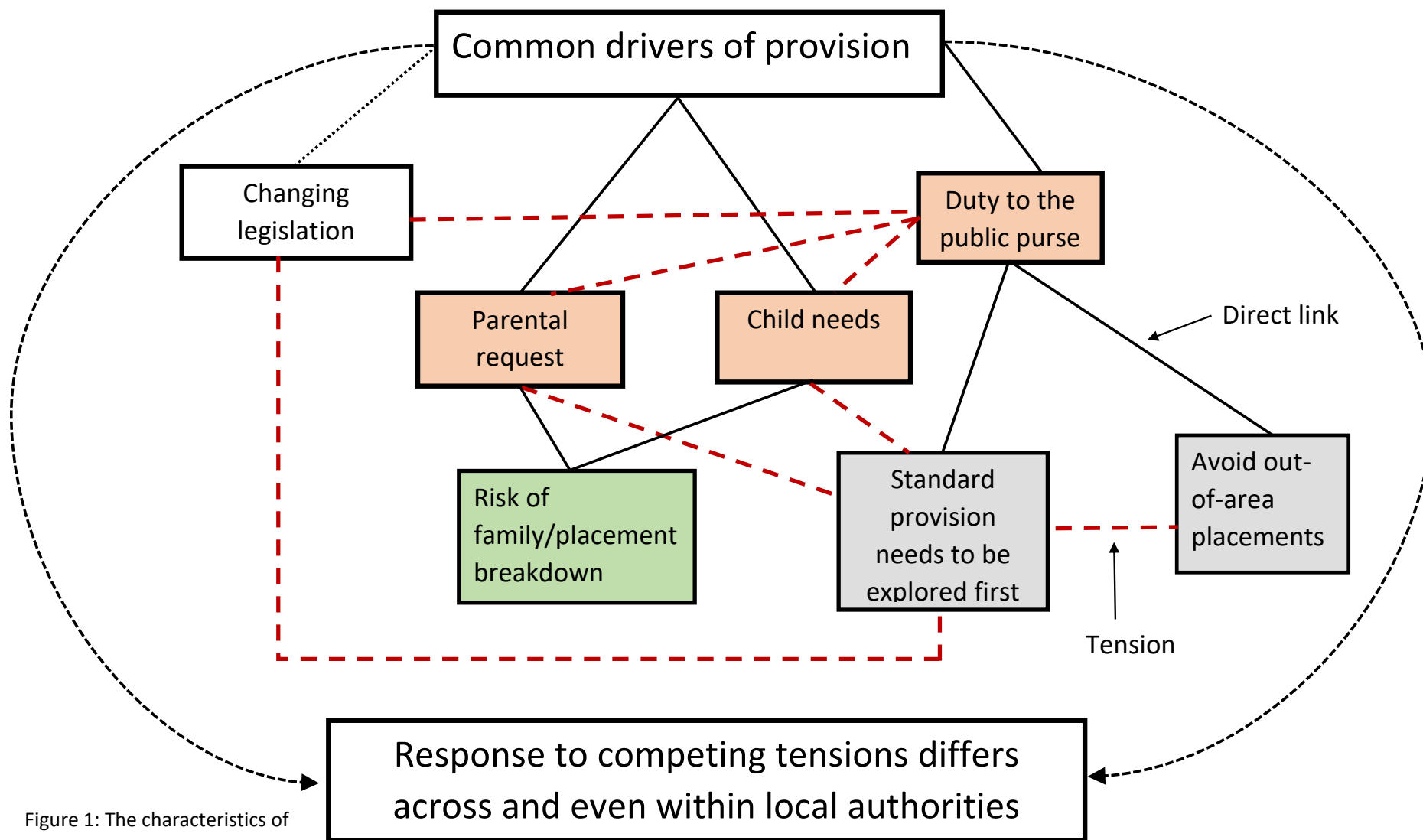


Figure 1: The characteristics of commissioning

## Discussion

The commissioning of services plays a key role in the dissemination of educational supports and interventions for children and young people with autism. This has implications for those interested in promoting evidence-based practices. Yet, research into the experiences and perceptions of those involved in commissioning is limited. This study is the first of which we are aware to explore the experiences and perceptions of those involved in the commissioning of support and education of children and young people with autism in the UK.

The findings suggest that commissioners are embracing the principles behind both the recent SEND reforms, as well as the more general shift to the strategic role of commissioning in service provision (as opposed to procurement). The primary drivers of provision (duty to the public purse, parental requests and children's needs) are consistent with the objectives underlying the Children and Families Act (2014) and the current climate of economic austerity. But as Rees et al. (2014) found, as did the reviews of the SEND reforms conducted by both the SEN Policy Research Forum (2016) and the NAS (2016), the principles of commissioning are not yet joined up into a coherent whole. This is perhaps not surprising. The current SEND reforms are being driven primarily by education. Yet in their review of the commissioning of services for children, not only did McNeish, Scott and Maynard (2012) find little research into the experiences of commissioners, they found relatively little research around commissioning in 'children's services'. Most research was instead focused on health and social care. Whilst not referring specifically to commissioning in education, McNeish et al. suggest that commissioning in children's services may be a relatively new development compared with health, in which commissioning is a well-established practice. The results of a systematic review conducted in 2012 of commissioning in health, education and social care (Newman et al., 2012) might suggest the same. The review identified 600 research studies

world-wide (about half were from the UK); of these only 59 were from education and most were related to adult education.

Furthermore, although the SEND Code of Practice refers to NICE guidance, the NICE guidance 'Autism spectrum disorder in under 19s: support and management' states on its website that it is for 'Healthcare professionals; Social care practitioners; and Children and young people with autism, and their families and carers' with no mention of education services. The guidance for commissioners is for 'CCGs and local authority social care and education commissioners' (p.3) but is written from a health perspective, even though support for children with autism is primarily delivered through education. With differences in the tradition of commissioning between education and health, and with the lack of joined up guidance across education and health in respect of the commissioning of services, it is hardly surprising that the notion of joint commissioning, although supported in principle, is not yet happening in practice.

It was apparent from the frustration expressed by participants that they are aware of the criticisms raised by stakeholders in the commissioning of autism services (parents, schools, other parts of service provision) that have been reflected in the SEN Policy Research Forum (2016) and NAS (2016) reviews. They also reported their own sense of dissatisfaction with the commissioning system. Harrison (2016) reported that the required level of change to the system is such that some local authorities are experiencing high levels of staff illness and staff turnover. Whilst this was not raised in the present study, the level of personal frustration conveyed by some participants are a clear indicator of those pressures.

It was interesting that evidence-based practice which is not included in the eight principles of commissioning (MacMillan, 2010) was not cited by participants as a key driver of provision more generally. The need to consider evidence-based practice is included in the SEND Code of Practice but the sources referred to in respect of this are NICE, the Cochrane

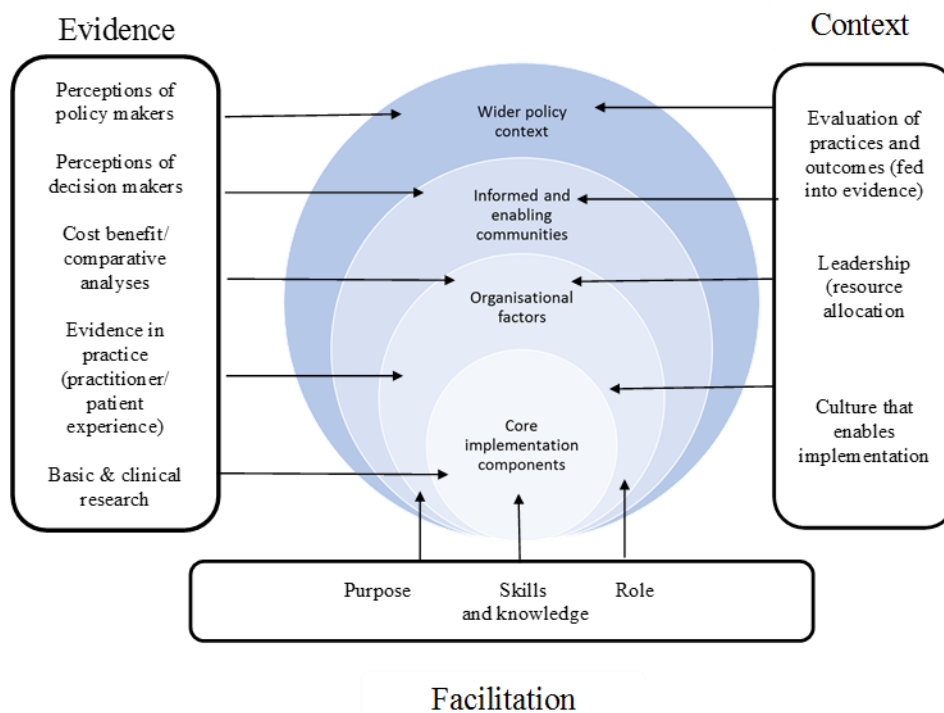
Database of Systematic Reviews (CDSR), and the Campbell Collaboration. The focus of the CDSR is on systematic reviews in health care and the Campbell Collaboration is on social and economic change (including Education). There is no referral to UK education based sources of evidence-based practice such as the Education Endowment Foundation (Speight et al., 2016).

The lack of specific guidance in respect of the commissioning of autism education interventions has already been identified. The NAS (2016) review of the SEND reforms has called for guidance in respect of this and our findings endorse that recommendation. We suggest that guidance should acknowledge the competing drivers of provision and offer a framework to facilitate decision making. We further suggest that guidance refers to evidence-based practice and draws upon sources of evidence from education. However, even if evidence-based practices are included in any guidance, commissioners are going to continue to also be guided by the need to meet parental requests, to address child needs and to do this within the constraints of public spending. For those involved in the dissemination of evidence-based practice the implications are clear. The evidence-base “badge” is insufficient. Interventions need to be capable of fitting into, or sitting alongside mainstream provision and should help develop locally available skills.

This was a study with a relatively small sample size and the sample was not homogenous. Both could be considered limitations although the methodology used was chosen to mitigate against these factors. It would be useful to conduct further research with head teachers who buy in services and local authority commissioners as separate groups. It would also be helpful to explore the collective decision making that takes place in many settings and the way that personal experiences interplay in these groups. Commissioners play an essential role in the support and education of children and young people with autism. We need a much better understanding of this and of how they, in turn, can best be supported.

## Chapter 7

### ***'I seem to sit uncomfortably on the fence': Experiences of those responsible for the procurement and purchase of behavioural interventions to support and educate children and young people with autism.***



The focus of Chapter 6 was on an exploration of the commissioning process in an attempt to understand the wider policy and context in which commissioning decisions in respect of autism education are made. Chapter 7 is based on the same study, and returns to an analysis of the third factor involved in implementation research: consumer involvement in, and perceptions of the selection and evaluation of practices. It looks specifically at the experiences of those involved in the commissioning of behavioural interventions in the support and education of children and young people with autism.



### **Abstract**

Research suggests that the professional experience and individual perceptions of those involved in the procurement and purchasing of services are more likely to influence decision-making than evidence-based practice. In the UK, support for children and young people with autism is typically delivered through education services. The decisions about what that support is are largely the responsibility of local government and, increasingly, the headteachers of schools. The process of agreeing the support needed, identifying solutions, and the procurement of that support is known as commissioning. Considering the role that commissioning plays in the dissemination of services and interventions, there is surprisingly little research into understanding the perceptions and experiences of those involved. In the present study, 12 people involved in the commissioning of interventions to support and educate children and young people with autism in the UK were interviewed about their views on behavioural interventions. Thematic content analysis was used to analyse the data and revealed three themes: i) all local government organizations offer some form of “behaviour provision”; ii) Applied Behaviour Analysis (ABA) is difficult to put into practice in a UK education context; iii) Positive Behaviour Support (PBS) is more palatable than ABA. The findings support the idea that evidence-based practice is less important to decision-makers than professional experience and the practicalities of providing services within existing education provision. Those involved in designing, delivering and disseminating interventions need to consider the contexts in which they are being delivered and find ways of communicating effectively with decision makers.

## Introduction

An internet-based survey amongst parents of children with autism in the UK found that support for their children is typically delivered through education services (see Chapter 6). Autism is a life-long neurodevelopmental disorder. Its characteristics include difficulties with social communication and interaction, and repetitive behaviours and interests (Lai, Lombardo, & Baron-Cohen, 2014). Prevalence in the UK is thought to be the same as in other countries with approximately one percent of the population of children affected (Baird et al., 2006). Approximately half of children with autism also have an intellectual disability (Totsika et al., 2011).

The procurement and purchase of autism education support in the UK rests with local government officials who are responsible for the provision of an extensive range of public services. In the UK, the provision of services is known as commissioning and that is the term used throughout this paper. Defined by the UK Government as ‘the effective design and delivery of policy, solutions or services’ (The Commissioning Academy, 2016) commissioning is broader than simple procurement. Commissioners are expected to evaluate population needs, establish a market of suppliers, and develop innovative and integrated solutions to health, social care and education provision (Rees, Miller & Buckingham, 2014). Increasingly, the headteachers of schools are also becoming involved in the commissioning of support to meet the educational needs of their students. Commissioners are required to work within the bounds of any legislation relevant to the services that they are providing. Autism education provision in the UK is covered by the Children and Families Act 2014 and the Special Educational Needs and Disability (SEND) policy and legislation. As with national legislation elsewhere, such as the Individuals with Disabilities Education Act (IDEA) in the US, the SEND Code of Practice (2015) acknowledges the importance of parental engagement, the positive impact of which has been extensively researched worldwide

(Hornby & Lafaele, 2011), and stipulates that parents must be involved in the decision-making process concerning provision of services to support their child. The legislation further states that ‘commissioning arrangements should be based on evidence about which services, support and interventions are effective’ (p.46) when supporting children and young people with SEN or learning difficulties.

The recent UK internet-based survey also found that just under half of the parents who participated (45.6%) were currently using at least one behaviourally-based intervention in the support of their child with autism, and that, when combined with interventions used in the past, the majority (62.5%) had experience of a behaviourally-based intervention (Chapter 5). For those interested in the dissemination of behaviourally-based interventions these figures may seem encouraging. However, another study conducted in the UK, which focused on the decision-making that lay behind parental choice of Early Intensive Behavioural Intervention (EIBI), found that 50% of a sample of 30 mothers of children with autism using EIBI reported that at the time of diagnosis they had not been offered any professional advice, let alone suggestions in terms of interventions (Tzanakaki et al., 2012). When advice was given, only 16% of the recommendations from professionals were in respect of Applied Behaviour Analysis (ABA), the applied branch of the science of behaviour analysis that is the basis of EIBI (Tzanakaki et al., 2012). Parent’s own research (talking to other parents, books, internet searches) was the primary source of information about EIBI for two thirds of participants. As well as having to do their own research, the study also found that many parents who choose EIBI have no choice but to self-fund their child’s programme entirely (in the absence of any support from their local government), or self-fund their programme initially, whilst setting out their case for support from their local government.

Recent SEND legislation came into effect in 2014 in the UK and is therefore not reflected in Tzanakaki et al.’s (2012) study. The changes in legislation brought about by the

Children and Families Act 2014 may result in more parental requests for behavioural interventions funded by local government in the future, however, at least two potential barriers to the dissemination of behavioural interventions remain.

The first is a lack of consensus in the UK of whether behavioural interventions in the field of autism education are evidence-based (Lai et al., 2014; Eldevik et al., 2012). Current national guidance and policies in autism education, apart from the recent revision of Scottish guidance for autism interventions (SIGN, 2016) do not reflect guidance and practice in other parts of the world where the evidence base for behavioural interventions is acknowledged (McPhilemy & Dillenberger 2013).

The second potential barrier is the role that perceptions play in decision-making (Rycroft-Malone, et al., 2004). Hammersley (2001) suggests that the discussion around evidence-based practice is often academic, with a focus on research evidence. Other forms of evidence include professional experience, which, in the absence of a consensus on research evidence, is likely to be significant. What do we know about that professional experience? A National Autistic Society (NAS) report in 2006 surveyed local government in the UK. The focus was on the use of autism services rather than the commissioning of those services and highlighted the lack of consensus around evidence-based practice in respect of autism intervention already noted. Within the behaviour analytic literature there are a few studies on parents' experiences of (Green, 2007; Grindle et al., 2009; Tzanakaki et al., 2012) and beliefs about (Chapter 6) behavioural interventions. There are also studies of professionals' views (Dillenberger et al., 2010) of behavioural interventions. We could find no research looking at the experiences of those who may be in positions in which they are responsible for the commissioning of behavioural interventions.

Our aim was to identify and explore the experiences and perceptions of those involved in the commissioning of services in the support and education of children and young

people with autism in the UK, with a focus on their' perceptions and experiences of behavioural educational interventions.

## Method

### Participants

Eight local government officials and four headteachers involved in the commissioning of services in the support and education of children with autism in the UK were interviewed between May and September 2015 (see Table 1 for further details). Participants represented eight different local government areas in England.

Table 1: *Participant information*

<b>'Name'</b>	<b>Job Title</b>	<b>Setting</b>
Alan	Service manager (autism outreach)	Local government
Brian	Headteacher	Special school (Primary – Post 16)
Claire	Service Manager, Early Help	Local government
Dawn	Designated clinical officer	Local government (joint commissioning)
Emma	Service manager	Local government (joint commissioning)
Fraser	Care manger Education	Local government
Gail	Headteacher	Special school (Secondary)
Helen	Manager Disabled Children's Services	Local government (joint commissioning)
Isabelle	Joint Commissioning Manager	Local government (joint commissioning)
Jenny	Head of SEN Assessment & Placement	Local government
Keith	Headteacher	Mainstream school (Primary) with autism resource base
Lucy	Headteacher	Special school (Primary – Post 16)

### Research Design

This study used semi-structured interviews. Thematic analysis (Braun & Clarke, 2006) was chosen as the method of analysis because the population was not entirely homogenous (although they shared an involvement in commissioning) and because, as far as we are aware, this was the first time that the experiences of this population with behavioural

interventions for autism education were being explored. This was a rich data set and participants were treated as the experts in their own experiences. The choice of method was designed to explore the quality and diversity of those experiences and to identify themes in an inductive or 'bottom up' way (Frith & Gleeson, 2004). This means that there was no attempt to fit themes into an existing theoretical framework; rather, they were grounded in the data. Collecting and analysing data from interviews is an interactive and dynamic process and one in which the researcher plays an active role. This is particularly the case with a semi-structured interview as it is the researcher who chooses which issues to follow up on to explore further. It is important that this process and the subsequent analysis is as transparent as possible and for this reason I completed a reflective journal (Ortlipp, 2008). I am a Board Certified Behavior Analyst (BCBA)<sup>®</sup> with over 15 years' experience of supporting children and young people with autism using behavioural interventions and, as a practitioner, have experience as a recipient of the commissioning process. As a researcher, my interests include the dissemination of evidence-based practice and behavioural interventions. It was difficult as someone with a vested interest in the dissemination of behavioural approaches in the field of autism not to engage with participants during the interview process and to challenge perceptions of ABA. These experiences and interests invariably influence the analysis of the data. However, steps were taken to reduce potential bias. I identified and bracketed my own biases as much as possible. One of my supervisors reviewed the interpretation of the interviews and checked the reliability of the coding. The interpretations of themes were shared and discussed amongst research team throughout the period of the study.

### **Procedure**

Ethics approval was given by Bangor University School of Psychology Research Ethics and Governance Committee (Appendix J). Participants were recruited using a purposive sampling method. Thirty-five potential participants including a mix of local

government officials and headteachers were identified from recommendations given by professionals in the field of autism, with whom I had personal contact. They were sent letters of invitation to participate along with an information sheet, and consent form (Appendices K and L). For the purposes of the study the “commissioning of services” was in respect of the support and education of children and young people with autism (up to the age of 25).

Involvement in commissioning was as part of, or on behalf of a local government, a school or group of schools, or other education provision such as home or community based programmes. “Behavioural interventions” included any interventions that are based on the principles of behaviour analysis including but not limited to: Picture Exchange Communication System (PECS), Natural Environment Teaching, ABA, Verbal Behaviour, Positive Behavioural Support (PBS) and those programmes described as the “Lovaas” approach (see Chapter 5 for a description of the history of behavioural interventions and use of terminology in the UK). Participants who returned the consent forms were contacted by me to arrange a suitable time and place for the interview with the option of being interviewed by telephone or face-to-face. All participants chose to be interviewed by telephone during working hours and in their work place. I conducted all the interviews. At the start of each interview the written consent was confirmed verbally, including consent to record the interviews, that participation was entirely voluntary and that the participants had the right to stop the interview at any time or to refuse to answer a question without giving any reasons. Interviews were recorded on a digital recorder.

The study used a semi-structured interview (Appendix M), including follow-up questions and prompts, developed by the research team. Questions were open-ended as this gave the researcher the chance to develop ideas and issues that came up during the interview. Participants were given an overview of the topics to be explored in the participant information sheet but did not receive a copy of the interview schedule. The interview

schedule was designed to explore the experiences and thoughts of those involved in the commissioning of behavioural interventions in the support and education of children and young people with autism. Participants were asked about their roles and the ways in which they were involved in commissioning more broadly, before going on to discuss their experiences of commissioning behavioural interventions. They were invited to think about specific instances in which the decision was taken to commission a behavioural intervention and the factors that led to that decision, as well as instances where a behavioural intervention may have been considered but was decided against. Interviews ranged between 21 and 61 minutes and were an average of 37 minutes.

### **Qualitative analysis**

Thematic analysis was conducted following the six stages outlined by Braun and Clarke (2006): familiarising yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, producing the report. Familiarization with the data began with the verbatim transcription of the recorded interviews which involved listening to and reading each data set several times. Once transcribing was complete, the entire dataset was read through twice without any note taking. Noting down initial observations in the margins and on post-it notes began with the third reading. Codes were assigned to each of the observations once this process had been completed for the entire dataset. The dataset was then re-read and the process repeated until I was confident that all potential themes and associated sub themes had been identified. Codes were used to develop theme tables with accompanying verbatim quotes for each transcript. Themes were further refined even during this process and, once complete, a master theme table of the entire dataset was compiled. Similar themes were grouped together and any hierarchies and relationships were identified using thematic maps. The maps were used to identify named themes and their associated subthemes. These themes and subthemes were further checked



against the master theme table, the individual tables and the interview transcripts to ensure that they were a fair reflection of participants' experiences of commissioning behavioural interventions in the support and education of children and young people with autism.

## Results

The interviews all began with a general discussion about participant's roles and the characteristics and drivers of commissioning in general. A detailed analysis of these characteristics is the basis of a separate report (Chapter 6). The common drivers of commissioning were a duty to the public purse, meeting children's needs, and respecting parental requests. Duty to the public purse was the underlying factor behind three additional drivers: the need to avoid out-of-area placements; the need for standard provision to be considered first (i.e., services that are already part of the local offering); and, for services to fit into, or sit comfortably alongside, mainstream provision. These are important to note as they provide context for the discussions surrounding behavioural interventions.

Although participants had been given a definition of behavioural interventions in the information sheet, including a list of interventions that are based on behaviour analysis, the terms with which participants were most familiar, and upon which discussions were based, were ABA and PBS. The results of the thematic analysis revealed three themes: i) All local governments offer some form of "behaviour provision"; ii) ABA is difficult to put into practice; iii) PBS is more palatable than ABA.

### **Theme 1: all local governments offer some form of "behaviour provision".**

When asked explicitly to talk about 'behavioural interventions' many participants responded that 'behaviour' provision was part of their standard service offer. They talked, for example, about having a 'behaviour support team', a 'behaviour improvement team', a 'behaviour resource team', a 'behavioural support function', a 'problem solving team'. One

headteacher said ‘everything that happens in here, it is behaviour interventions’. “Behaviour” was acknowledged to be an issue that everyone faces and it was agreed that specialist behavioural support is needed. However, when asked about what that specialist support looks like, what these teams did, or what specific interventions were used, answers were often vague and sometimes defensive. Responses felt “guarded” as though participants were saying what they thought they ought to say given their professional role, but did not feel comfortable discussing specifics.

On the whole um as far as behaviour interventions are concerned I mean we do use some, some are used by schools. We haven’t used sort of um commissioned them directly ourselves because we tend to have the capacity within our teams to to look at those behaviour interventions (Claire, Local government)

There were only three participants who spoke spontaneously about ABA or PBS and yet, when prompted, all but one participant had experience of either ABA or PBS, which had been commissioned in addition to their standard provision.

The headteacher who described all that they do in the school as ‘behaviour interventions’ was the only participant with no knowledge of ABA or PBS. Her description of a “behavioural intervention” would not be recognized as such by anyone familiar with behaviour analysis. She referred to tactics used in respect of the pupil’s overall behaviours, but not to specific interventions or to a process of understanding the function of a specific behaviour and outlining a structured plan in respect of that.

We know something’s not right with him at the moment, so we’re now three-and-a-half, four weeks into term. We’ve had a few whirling dervish moments where he’s run round the school screaming, and so on. So, this week his lessons are delivered on a one-to-one basis, they all start with, in, erm, our school council room, er, where the lights can be dimmed a little bit, where there is air conditioning, so we can keep it reasonably cool, and, erm, they all start with Lego, and then his work is put in front of him, he’ll do his work, and it will finish with Lego, because that seems to be his safety security blanket at the moment. (Gail, Headteacher)

Overall the discussions acknowledged “behaviour” as a characteristic associated with children with autism, which causes problems – for schools, for parents and for the children themselves. Behavioural interventions were spoken about as reactive strategies to those problems rather than being seen as offering proactive approaches in the support and education of children with autism.

**Theme 2: ABA is difficult to put into practice.**

The seven participants who spoke of ABA were neither particularly pro nor anti. Three of the participants (two headteachers and one local government official) were actively establishing ABA provision within their settings. Keith (headteacher) was responsible for an autism unit that is co-located within a mainstream school. The service model being used in the unit is based on the principles of behaviour analysis. It was set up at the request of the local government area within which the school is located. The reason given was that the local government was having to send increasing numbers of children out-of-area because of an inability to meet parental demands for ABA within their standard provision and this is costly. This was also the reason behind Alan’s (Local government) decision to include ABA in his area’s standard provision.

They were already paying for ABA provision, so they felt it was better, rather than just sit on, sit back saying they don’t approve of it, actually try and bring it in house and actually have a provision that’s based on, er, behaviour analyst principles (Keith, Headteacher)

We also sort of have partially taken on a role within the local government which is in its infancy really in terms of where parents have insisted on ABA within their mainstream well its not just mainstream but where they have go it written on to their statement (Alan, Local government)

Lucy (headteacher) had commissioned ABA support because it was written into a students’ Education and Health Care plan, similar to an Individual Education Programme (IEP) and the school could not provide that support in-house.

All participants talked about difficulties they had with ABA – even the three actively seeking to establish ABA provision. There were two main subjects to the discussions around the difficulties – the problems associated with perceptions about ABA amongst the education community more widely, and the practical difficulties encountered because of incompatibilities between ABA and the common drivers of provision expressed by those responsible for commissioning autism education services (duty to the public purse, meeting children’s needs and respecting parental requests), (see Chapter 6).

The difficulties in terms of perceptions were both from participants’ own point of view as well as being aware of the perceptions of others. Jenny and Keith’s experiences were typical: their own initial scepticism was replaced by a willingness to commission ABA having seen examples of good practice:

I went to one particular school and they said, ‘Oh, we’ll show you our ABA,’ and I kind of pulled a face that I was sucking a lemon, and said, ‘This is going to have to be good for me to be convinced,’ and, erm, I was really impressed. (Jenny, Local government)

and we were reassured that some of the [ABA] practices we, you know, good teaching – ABA is good teaching, we recognize that and... So we could see that it wasn’t this dreadful Skinnerian thing that people [chuckles] object to (Keith, Headteacher)

That initial scepticism came from having seen examples of what they perceived to be poor practice.

I’ve just seen some appalling practice where kids were being drilled, erm, you know, ‘Choose one of these three pictures’ ... You wouldn’t, you know, you wouldn’t see an educational psychologist do that, you wouldn’t see a teacher do that. (Jenny, Local government)

the home-based ABA programmes who/which are, I have to say incredibly poor in my experience (Alan, Local government)

there’s a concern that some of the home programmes are not of good enough quality (Keith, Headteacher)

he had ABA but it had stopped with a bit of a complication. Erm, he came here and we had to strip everything back and start again, basically (Lucy, Headteacher)

Participants also spoke about the perceptions of others being difficult for them.

we've had people saying, 'I'm not coming near your centre because you have ABA, you mention behaviour analysts.' (Keith, Headteacher)

the Headteacher is absolutely adamantly against anything to do with ABA. And I mean that because it is a behaviourist school they do a lot of TEAACH (Alan, Local government)

you know, I, I was cautioned when we... not cautioned, but, but, erm... we're asked to be aware of it [ABA]. (Lucy, Headteacher).

What was striking about the interviews is the language participants used when they started to talk about ABA. The discussions around ABA elicited personal and emotional responses, the language was vehement, pointed towards conflict and the sense of a divided "us" and "them" approach to autism support. One participant described having 'survived the ABA onslaught' and 'trying to take on this ABA bubble'; another spoke of a colleague being 'absolutely adamantly against anything to do with ABA' and the fact that people 'bristle' when he talks about ABA. Alan, (Local government) summed up the views when he said 'you know you either seem to sit in an ABA camp or not and I seem to sit uncomfortably on the fence. Very uncomfortably.'

And yet, there was an acknowledgment of the positive change that ABA can make for children and young people with autism:

I think, what, what the difficulties are for commissioning decisions, er... the evidence base for ABA and working with individuals, achieving, you know, positive change, is irrefutable. (Fraser, Local government)

I do think they are, they... they are changing their view..... that what we're doing does work within the mainstream and local government setting. (Keith, Headteacher)

that's quite a strength, really, to be able to say, 'Well, yes, er, they most benefit, say, with behaviour intervention. (Lucy, Headteacher)

The focus of most responses, however, was on the practical difficulties of putting ABA into practice. These were not surprising when considering the primary drivers of provision listed

above. Parental request was perceived as a key driver for ABA provision. Jenny (Local government) pointed out that ‘anything to do with ABA usually comes from the parents’. And, although the need to acknowledge parents’ wishes was respected by participants and recognised as important, there are associated problems that come with this - particularly when it leads to conflicts with the other drivers of provision: Does it really meet children’s needs? Is it the best use of public funds? And how does it fit into mainstream provision?

I think that’s the bit that I sort of wanted to challenge and I wanted to be able to do that two-fold: I wanted to be able to look at and ask the question why does that child need ABA; that question not just to follow the parents request and to try to find some justification for that to try to produce a windscreen that would identify where that child is on that windscreen that is requiring an intervention (Alan, Local government)

For instance, some participants cited examples in which parents were looking to influence the way that an ABA programme should be run or its content. Parents looking to replicate programmes that had started at home, in schools, despite being inappropriate for a school setting, or being reluctant to let go of programmes that had been hard fought for, even though they may no longer be meeting a child’s needs, were cited as examples. There were further concerns that ABA was too ‘narrow,’ ‘too limiting’ and ‘not giving the child the independence that... you know, that, that they would like to be seeing’ (Lucy, Headteacher). Parental requests can also pose problems in terms of the structure and staffing of a commissioned ABA programme. Alan (Local government) spoke of parents not accepting the staff that the school was offering even though those staff had experience of working with children with autism:

And I see that with a young man where parents are absolutely adamant you know that it has to be ABA, ABA, ABA, and are very, very challenging towards any member of staff that doesn’t have three letters after their name effectively (Alan, Local government)

Insisting on who schools employ caused problems not just in terms of the school not being able to effectively deploy staff on site but also necessitated sending the subsequently hired

ABA staff on an autism course. Alan noted that competence in ABA does not predicate an understanding of autism. He also spoke of a case in which parents had been granted an ABA programme but wanted that provision to reflect the typical tiered service delivery model as described by the Behavior Analyst Certification Board (BACB)® in the USA (BACB, 2014) in which programmes are delivered by an ABA Consultant, Supervisor, and a team of tutors headed by a lead tutor.

Very successful and the programme is working very well but because Mum has written in the statement two members of staff she is wanting another member of staff hired ... And at the moment we are refusing .... Because she is getting a full-time ABA programme so this is the complexity of just how the inflexibility of an ABA programme and I don't mean the programme, ABA structure, to fit into the commissioning in a way that the local government would work or the employment rights or the HR rights (Alan, Local government)

Jenny spoke of the difficulties sometimes encountered of having agreed to commission ABA on the understanding that it fits into the school setting and then having that understanding challenged:

I think one of the things that the, that the ABA people do wrong is that they, erm... they chisel away at what the school's trying to do and they erode the school's core offer, and that, no matter how much you think you've agreed how this is going to work, within a few weeks they'll be back pushing the boundaries and asking for something different. (Jenny, Local government)

Duty to the public purse is another key driver. ABA is perceived as expensive compared to mainstream provision.

its it's a lot of money so you don't want to use it if you can actually meet their needs within schools in the school budget (Emma, Local government)

The costs are not just in terms of monetary spend – the fact that ABA is perceived as not naturally fit into mainstream schooling means that local government and schools are not able to develop their own skills in this area and so are locked into relying on outside staff. With costs comes accountability, and participants also expressed concern at the lack of standards of ABA provision and the differences in the quality of ABA providers: 'night and day' is how

Alan (Local government) described the difference between two of the providers he had experience of.

Some participants were concerned with the basis upon which parents request ABA. They spoke of parents responding to marketing from ABA providers, and anecdotal evidence from other parents or on websites:

you know, in my experience, parents get on the internet, they're looking for a cure for ASD, they trip over the, erm, very, kind of, sexy websites from the [unclear], the options, all of those people, offering them a cure, if they follow this particular programme. And they will come to you, having already spoken to those people.....Some of it is because it's been over-marketed, and I sometimes feel depressed that I feel the parents have been promised a cure. (Jenny, Local government)

there was definitely a, kind of, an underlying feeling that, you know, if I do this hard enough and intensively enough, you know, my child will no longer be autistic ... The get-out clause always was, was, 'Oh, well, if they weren't cured, you obviously didn't do the programme properly (Isabelle, Local government)

It was noted earlier that participants neither came across as being pro or anti ABA themselves. The combined experiences of seeing ABA work, but encountering problems when putting it into practice, left all describing ABA as an exemplar of the complex issues and frustrations that come with commissioning more generally.

### **Theme 3: PBS is more palatable than ABA.**

In contrast to the comments about ABA, the tone and language used when participants spoke about PBS was completely different. It was overwhelmingly positive: 'when you talk about positive behavioural interventions ok? People listen'. Unlike ABA, the demand for PBS is seen as coming from within the local government or school, not parents. It is often in response to the risk of placement or family breakdown, which, in turn, is usually due to the severity of challenging behaviour. The six participants who spoke of PBS acknowledged its effectiveness and few concerns were raised.

And we're really proud of what 'Charlie' has achieved. of what we have achieved ... I see them as an essential part of the toolkit so yes it is something that I would do again (Brian, Headteacher)



because we've had quite a lot of success with that with the bespoke individual PBS programmes what we've decided to do is commission that service for the next two years as a more permanent service (Dawn, Local government)

that's why you know we carry on [commissioning] it because you know it has proved so effective (Emma, Local government)

Only one participant spoke of an isolated concern in relation to the education provision in a specific case where it was felt that the PBS intervention did not sufficiently prioritise inclusion:

we as a school at that point were were we began to have some concerns around the breadth of the curriculum offer? (Brian, Headteacher)

Unlike the discussions around ABA which described an 'us' and 'them' working relationship the Headteacher felt able to raise and discuss this issue with the PBS team:

when the conversations did take place we took, the opportunities for [the student] to spend time with his peer group were significantly enhanced; we were very well supported, and structured by the team in partnership with the receiving class team (Brian, Headteacher)

Participants recognised that PBS is grounded in behaviour analysis but observed that it does not come with the 'baggage' that appears to be associated with ABA:

If I take that Headteacher of that school who is very experienced highly respected in terms of what he has been doing with his school if I start talking to him about positive behavioural interventions and if I talk about everything to do with ABA without mentioning ABA then he's listening. The moment those three letters come into a conversation, this person is very knowledgeable, that for me is someone who has a view based on an old or perhaps its like the old Lovaas approach being compared to a more modernistic ABA (Alan, Local government)

the common language that is used within the CCG [Core Commissioning Group] context is Positive Behaviour Support. .... ABA I think is not referenced ...

Interviewer: ABA is that not used because of the, because it is slightly loaded?

Yes, I would say that and probably from the school's perspective to be very honest with you, probably from the school's perspective more than any others (Brian, Headteacher)

Alan summed the situation up for some of the difficulties surrounding the commissioning of ABA very neatly:

and actually, dare I say, finding an alternative name [for ABA]. You will get so many people who bristle ... when you talk about positive behavioural interventions ok?  
People listen (Alan, Local government)

### **Discussion**

Decision-making in respect of the commissioning of services is often influenced by the professional experience of those responsible for paying for their purchase. And yet research into professional experiences and the perceptions that arise from them is limited. This study is the first to explore the experiences and perceptions of those involved in the commissioning of behavioural interventions in the support and education of children and young people with autism.

The findings are mixed for those interested in the dissemination of behaviour analysis. The positive findings were a general acknowledgement that behavioural interventions are effective and, arguably more pertinent, experiencing good practice can favourably change a person's perception of behaviourally based interventions. Participants had particularly positive experiences of PBS. The recent changes to SEND legislation that bring the UK in line with practices elsewhere with an emphasis on parental involvement in the decision-making process and on evidence-based practice, should benefit the field of behaviour analysis.

However, significant barriers to that dissemination still exist. It was interesting to note that "evidence-based practice" did not feature in the discussions around behavioural interventions other than the acknowledgement that they can be effective. As a field, we value our evidence base. Yet in his discussion on evidence-based behaviour analysis, Smith (2013) suggests that behaviour analysts spend too much time either justifying the case for being evidence-based or challenging standard definitions of evidence-based practice (Keenan &

Dillenberger, 2011) and replacing them with our own (Horner et al., 2005). He argues that this is at the expense of focusing on the development of 'ways to put procedures together into a package for use in a practice setting' (Smith, 2013, p.14). The perceptions of those who participated in this study were that PBS has been relatively successful at meeting the needs of their settings, but that ABA has struggled to do this. The data suggest that the difficulty of fitting into mainstream provision and an incompatibility with the primary drivers of the provision in the support and education for children with autism (duty to the public purse, parental requests and children's needs) could be potential barriers to ABA dissemination in the UK. Where ABA has been commissioned, it is often because of parental request. This is despite, in many instances, being perceived as incompatible with mainstream provision, which is an important factor behind duty to the public purse. Participants also see keeping a child in mainstream provision as being in their best interests. Thus, whilst many participants had seen good examples of ABA practice and the evidence base of ABA was not challenged, there were examples cited of ABA being too prescriptive, be that on the part of parents or providers, and too insensitive to the way that local government and schools work and the broader goals of education provision. Rather than lay out the case behind our evidence base, behaviour analysts would do well to focus efforts on developing behaviour analytic solutions that fit into mainstream practice.

In this respect, it is not surprising that PBS appeared to be more acceptable. PBS is actively sought-after in some local government areas and schools because it is a solution to meeting specific children's needs (those presenting with challenging behaviour) which standard provision currently does not provide for. But here too there are implications for dissemination and a shared understanding of PBS. The commissioning of PBS for children with autism appears to be a response to challenging behaviour, brought in when challenging behaviour is such that it poses a risk of family or placement breakdown. There were no

instances described of commissioning of PBS as an acknowledged effective approach for the support of children with autism in the absence of challenging behaviour. There was also little acknowledgement that PBS is grounded in ABA although it was recognised as a ‘behavioural intervention’.

Completely missing from the data was evidence of participants’ understanding of the wider potential of the field of behaviour analysis in supporting and educating children with autism: teaching children academic skills such as reading (Grindle et al., 2013) and math (Tzanakaki et al., 2014); developing communication skills through teaching verbal behaviours (Landa, Hansen & Shillingsburg, 2017); and using precision teaching to increase fluency (Kerr, Smyth & McDowell, 2003) to give just a few examples. Addressing this lack of understanding of the science of behaviour analysis, the contribution that behaviour analysis can make to a range of socially significant issues including autism, and its many applications, is the responsibility of all behaviour analysts.

There are some clear limitations to this study. This was a relatively small sample size and the sample was not homogenous. We are aware that invitation letters were sent to individuals and local governments with a publicly stated antipathy to ABA as well as those who appeared to support the commissioning of behavioural interventions. Many did not respond. Our assumption is that those who chose to respond were open to the discussion despite any misgivings that they may have had. The methodology used was chosen to mitigate as best possible against these factors. We are aware too of examples where ABA has been successfully embedded into mainstream school practices (Foran et al., 2015) and it would be wrong from such a small data set to imply that this is not the case.

The implications nevertheless for those involved in developing behaviourally based interventions in the support and education of children with autism are clear. And whilst this study was conducted in the UK, the findings are likely to be relevant to other countries in

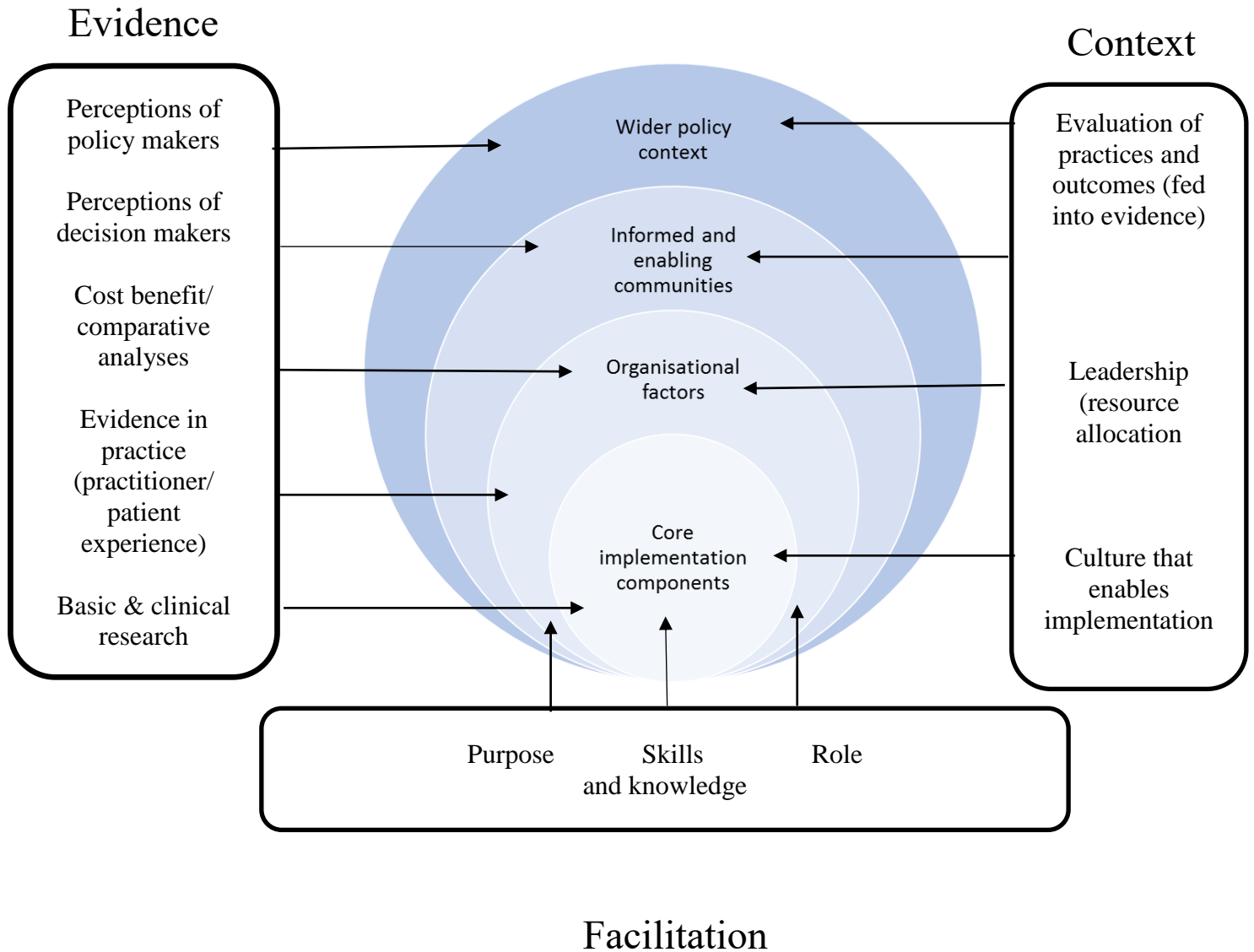
which the provision of behaviourally based interventions are the responsibility of decision makers who must balance competing priorities and embed services into mainstream education provision. Those involved in designing and delivering interventions need to be sensitive and responsive to the contexts in which they are being delivered. Dissemination is a shared process - perpetuating “us” and “them” is unlikely to be effective longer-term.

## **Chapter 8. General Discussion**

The question of how basic research moves out of clinical settings and into practice that is effective, sustainable, and leads to meaningful outcomes is of concern to all applied sciences. For those interested in the dissemination of ABA in the UK this is of particular interest. To date, apart from the recent revision of Scottish guidance for ASD interventions (SIGN, 2016), recommendations for the use of ABA interventions in the support and education of children and young people with autism have not been published in the UK. This is despite an emerging evidence base for the effectiveness of behavioural interventions with this population (Luiselli, 2014; Eldevik et al., 2012; Peters-Scheffer et al., 2011), and the recognition of ABA in guidance and practice in other parts of the world (McPhilemy & Dillenberger 2013).

### **Overview of the aims, findings and contributions**

The aim of this thesis was to explore four key factors which two models of implementation research discussed in Chapter 1 (Fixsen et al., 2005; Rycroft Malone et al., 2004) suggest are key to evidence-based practice: i) core knowledge and skills associated with implementation; ii) organisational processes which embed these into practice; iii) consumer involvement in, and perceptions of the selection and evaluation of practices; iv) the wider national policy and regulatory framework (see Figure 1).



*Figure 1:* Suggested relationship between 4 key factors proposed by Fixsen et al., (2005) and the PARIHS model of evidence-based practice (Rycroft-Malone et al., 2004)

The findings from six research chapters are summarised in this discussion. Based on these findings, an implementation model for ABA is proposed. This model maps where ABA currently sits in relation to the above factors, in respect of the support and education of children and young people with autism, and highlights current gaps in implementation research. The implications of this for the dissemination of ABA in respect of autism education are discussed, along with how the findings may help with other areas of behaviour

analysis. Limitations of the study, my own reflections on the research process, and issues arising are explored, and used to suggest recommendations for future research.

### **Summary of findings**

*i) Core knowledge and skills associated with implementation.* The focus of Chapter 2 was on the first factor - core knowledge and skills associated with implementation. It describes the development of a competence framework for those involved in the support and education of children with autism using ABA. Competence frameworks are increasingly being used to achieve a high level of consistency when measuring the quality of service provided, assessing performance, as well as providing a basis of common language both within a profession and for its external audience. They define the core knowledge of a profession and outline the skills needed to translate that knowledge into practice. The chapter included a review of the common and critical features of competence frameworks across health and education in the UK and, based on these, a framework appropriate for the field of ABA, specifically focused on autism education in the UK was proposed (UK ABA Autism Education Competence Framework, 2011, see Appendix B).

The reason for developing a competence framework for ABA autism education was because, at the time, there were no intervention manuals, standardised training, qualifications, curricula, or agreed descriptions of the delivery of ABA for front line staff working in education settings (including home programmes); and the BACB<sup>®</sup> had indicated a lack of interest in developing a task list for front line staff. The BACB<sup>®</sup> has since, in 2013, introduced the Registered Behavior Technician<sup>®</sup> (RBT) certification. Interestingly the behaviour analytic content of the UK ABA Autism Education Competence Framework is comparable to that of the RBT<sup>®</sup> task list.



This was the first attempt within the field of behaviour analysis however, to bring together a clearly defined list of the things that you need to know (knowledge) and the things that you need to do (demonstrable behaviour) in the support and education of children and young people with autism in the UK. Its significance lies in the fact that although the need for behaviour analysts to understand the populations that they work with, and the context within which services are delivered, is acknowledged in the BACB® Professional and Ethical Compliance Code for Behavior Analysts, there had been no previous attempt to define what is involved in the delivery of ABA to children with autism in a UK education context. The RBT® does not include any competencies in relation to populations or context.

The findings of the review of competence frameworks and the process used to develop the UK ABA Autism Education Competence Framework Level 1 (2011) were employed in the subsequent development of the UK Positive Behavioural Support (PBS) Competence Framework (2015) (<http://pbsacademy.org.uk/pbs-competence-framework/>). (Also see Denne et al., [2013] for a case study outlining the potential value of developing a competence framework for PBS).

**ii) Organisational processes which embed core knowledge and skills into practice.** In Chapter 3, the focus turned to the second factor: organisational processes which embed core knowledge and skills into practice. An example of a practical application of the competence framework was discussed – identifying ways of measuring staff competence. The importance of having staff competent in the delivery of interventions and having an infrastructure that promotes and measures staff competence was highlighted by Fixsen et al., (2005) and by the Rycroft-Malone et al., (2004) PARIHS model. ABA service providers typically measure competence by direct observation, video analysis, and written examination. However, apart from the York Measure of Quality of Intensive Behavioural Intervention (YMQUI) there is a lack of direct links between defining competencies and developing

assessment tools for those competencies. The study used three measures of competencies developed from the UK ABA Autism Education Competence Framework Level 1 (2011). The construct validity of these measures was assessed by comparing the performance of two groups of tutors working in a school for children with autism ("experienced" vs. "inexperienced") and performance of the "inexperienced" group at baseline (T1) and following one year of competence based training (T2). A previously validated measure, the YMQUI was used for comparison. Results revealed that the more experienced group in both the between-group and longitudinal comparisons achieved higher scores, supporting the construct validity of the measures. There were few associations between the different methods of assessing competence, suggesting that no measure should be used in isolation if competence is to be comprehensively assessed.

There is an assumption underlying this research that intervention fidelity is likely to be higher when organisational processes map onto a shared and agreed definition of what that intervention is and how it should be delivered. The contribution of this study lies in illustrating ways in which resources can be developed against a core set of competencies and used to embed those competencies into practice.

Just as the study described in Chapter 2 was used to inform the development of the PBS competence framework, so too the findings in Chapter 3 have been used by the PBS community to inform the development of resources that map onto the PBS competence framework which aim to facilitate its implementation. These are tailored for specific stakeholder groups.

**iii) Consumer involvement in, and perceptions of the selection and evaluation of practices.** The research undertaken for chapters two and three assumed a demand in the UK for behaviourally based interventions in relation to autism education. Chapter 4 sought to

quantify that demand. Using an internet-based survey, the study described is the first to report exclusively on data from a UK sample of 160 parents. The data show that visual schedules, speech and language therapy, and ABA were currently most in use with the parents sampled. The majority of these parents reported using more than one intervention concurrently. Younger children were more likely to be currently using at least one intervention, and current use of ABA was found to be associated with higher parental educational level. The findings highlighted the need for further research into the factors that underlie decision making in respect of interventions used. This was the basis of the study described in Chapter 5.

Within autism education, research suggests that parents are often, and not necessarily by choice, key decision makers. The importance of consumer involvement in evidence-based practice and of the role that perceptions play in the decision-making process is a key feature of models of implementation (Fixsen et al., 2005; Rycroft-Malone, 2004). Chapter 5 is the first study to attempt to identify and quantify UK parents' beliefs about ABA in the education and support of children with autism. The Parental Beliefs about ABA and Autism scale (P-BAA), was developed for the study. Current and/or past use by parents of any behaviourally-based approach including ABA was found to be a significant predictor of P-BAA scores as were parent education, household income and child diagnosis: experience of a behaviourally-based approach, higher levels of education and income and children at the more 'severe' end of the autism spectrum were associated with more positive beliefs about ABA. Although it is not possible to be sure whether more positive beliefs about ABA contributed to parents' intervention choices or whether exposure to behavioural interventions may lead to more positive beliefs about ABA, the study shows that measuring perceptions is possible, and that there is a broad spectrum of perceptions about ABA. These may indeed play a part in parental decision-making.

In chapters 6 and 7, the attention was switched to another group of decision makers. In the UK, support for children and young people with autism is typically delivered through education services. The decisions about what that support is are largely the responsibility of local government and, increasingly, the headteachers of schools. In the first study to explore the experiences and perceptions of those involved in the commissioning of support and education of children and young people with autism in the UK, 12 people involved in the commissioning of autism education services were interviewed. Chapter 7 focused on participant views on behavioural interventions. Thematic content analysis was used to analyse the data. Three themes emerged: i) all local government organisations offer some form of “behaviour provision”; ii) ABA is difficult to put into practice in a UK education context; iii) PBS is more palatable than ABA. These themes were discussed in relation to the wider national context in respect of commissioning. The findings support the idea put forward by Rycroft-Malone et al., (2004) that evidence that comes from basic or clinical research is less important to decision-makers than professional experience; but also, that professional experience needs to be considered within the context of the wider national policy and regulatory framework. This is described below.

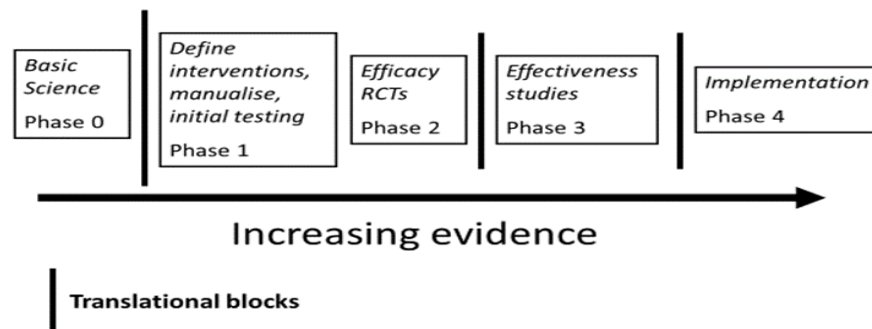
**iv) The wider national policy and regulatory framework.** Chapter 6 focused on the characteristics of commissioning more generally, and the context within which commissioning occurs. The key findings of interest to emerge from the data were that the primary drivers of the commissioning of services in the support of autism education in the UK are duty to the public purse, children’s needs, and parental requests. Child needs and parental requests are the cornerstones of the Children and Families Act 2014, and Special Educational Needs and Disability (SEND) policy and legislation. Although the SEND Code of Practice (2015) stipulates that ‘commissioning arrangements should be based on evidence about which services, support and interventions are effective’ (p.46) when supporting

children and young people with SEN or learning difficulties; and the NICE Support for Commissioning for Autism advises that support should be evidence-based' (p.12), evidence-based decision-making was not identified by commissioners as a driver of commissioning. Rather, in the absence of specific guidance in respect of the commissioning of autism education services, the practicalities of providing services within existing education provision and legislation was a key factor.

### **Where does ABA sit in relation to implementation research?**

Where does ABA sit in relation to the models of implementation proposed by Fixsen et al., (2005) and Rycroft-Malone et al., (2004)? I suggest that the picture is mixed. Both models take as their starting point, stages one and two of the translation process described by Novins et al., (2013) discussed in Chapter 1. Firstly, the translation of basic scientific principles into an intervention; secondly the expansion of basic findings to clinical practice. It was suggested in Chapter 1 that the development of ABA in the 1960s as a distinct branch of the science of behaviour analysis (Baer, Wolf, & Risley, 1968) based on principles derived from the Experimental Analysis of Behaviour (EAB) successfully bridged Stage 1 and some aspects of Stage 2, (Mace & Critchfield, 2010) for the field of behaviour analysis.

Thornicroft et al., (2011) suggested however, (see Figure 2) that these stages also involve several necessary phases: 0) basic science discovery; 1) early studies that apply basic science to human problems; 2) early clinical trials; 3) late clinical trials; and 4) implementation.



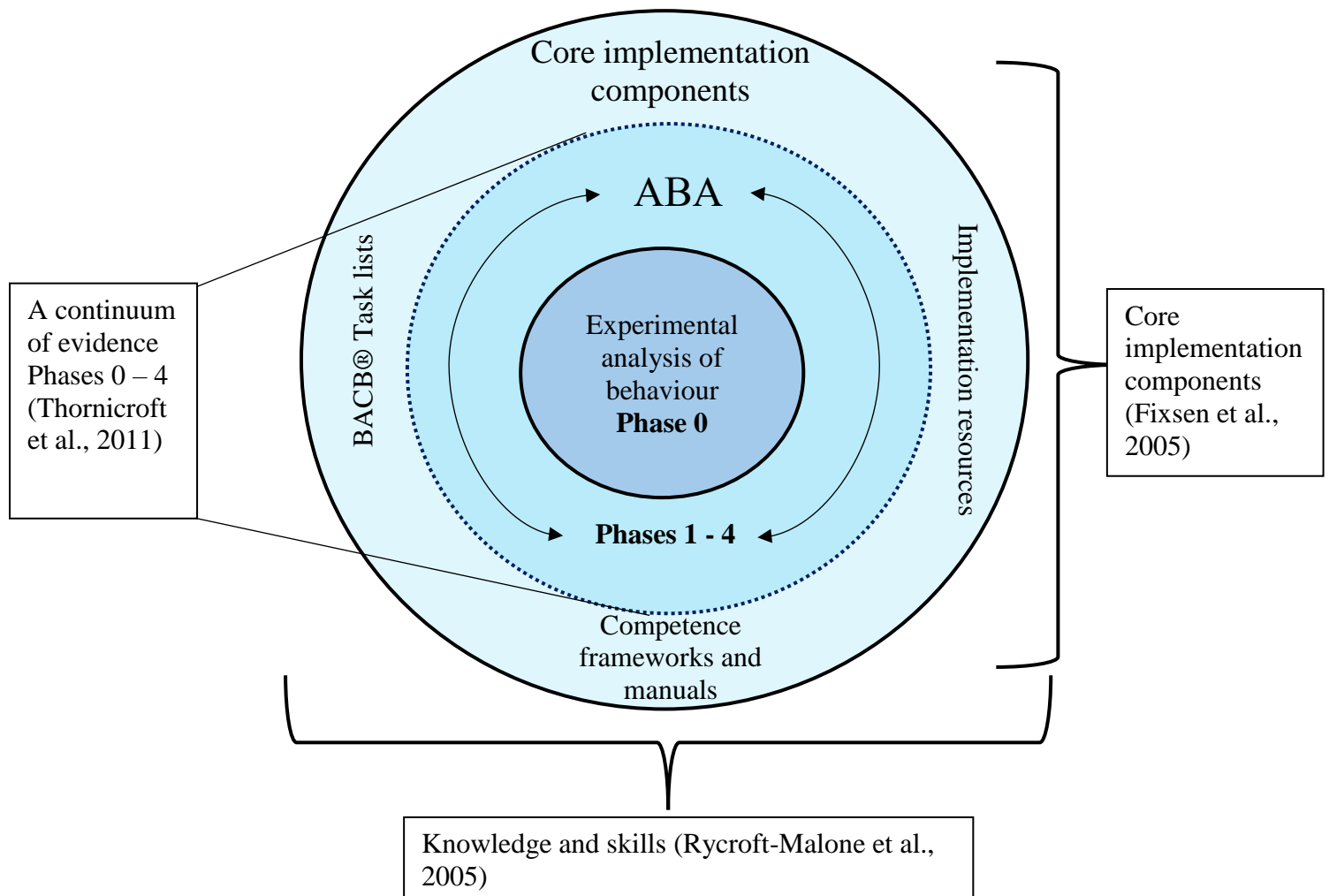
*Figure 2: A continuum of evidence showing phases of evidence-based practice and potential translational blocks based on Thornicroft et al., (2011)*

Although not the subject of any of the individual studies that made up this thesis, it has become clear over its course that within the field of ABA, the continuum of evidence as proposed by Thornicroft et al., (2011) is not yet complete. Arguably, even for a service delivery model such as EIBI, which appears to have a sound evidence base from theory to implementation, phases 2, 3 and 4 are not fully complete. Thus, for example, whilst syntheses of research suggest EIBI is effective (Eldevik, 2009), efficacy RCTs are missing (Hastings, 2015). This discussion of the factors involved in Stage 3, the widespread adoption of an intervention, which was identified by Novins et al., (2013) and modelled by Fixsen et al., (2005) and Rycroft-Malone et al., (2004) bears this in mind.

#### **i) Core knowledge and skills associated with implementation.**

Figure 3 shows the relationship between the factors identified by Fixsen et al., (2005) and Rycroft-Malone et al., (2004) as well as the phases proposed by Thornicroft et al., (2011) in relation to ABA. Both the Fixsen et al., (2005) and the Rycroft-Malone et al., (2004) models begin with the importance of having clearly defined skills and knowledge that describe what practitioners need to do to competently deliver core implementation

components of an intervention. This may include, for instance, competence frameworks, intervention manuals and other implementation resources.



*Figure 3:* ABA in relation to core implementation components (knowledge and skills associated with implementation)

The starting point of this thesis was the development of a competence framework for those involved in the support and education of children and young people with autism using ABA. It was noted above, that at the time of developing the framework, there were few resources for those responsible for the delivery of ABA interventions in the support and education of children and young people in the UK and nothing which brought together

required knowledge in respect of ABA, autism and education. The work presented in Chapter 2 should therefore satisfy the first factor “core knowledge and skills associated with implementation”. However, to be effective, a competence framework needs to be adopted. There has been a reluctance on the part of some within the behaviour analysis community to acknowledge the need for specific competencies in respect of autism and education. It has been argued that the BACB<sup>®</sup> task lists outline the technologies which define the field, and that these technologies are transferrable across settings and populations. This is despite the BACB<sup>®</sup> acknowledgement noted above that the Professional and Ethical Compliance Code for Behavior Analysts, requires behaviour analysts to understand the populations that they work with, and the context within which services are delivered. The research conducted with commissioners of services five years later, described in Chapter 7, suggests that one of the barriers that commissioners face when putting ABA into practice, is a poor understanding of autism on the part of some ABA therapists, and the difficulties of fitting ABA into standard education. Rycroft-Malone et al., (2004) highlighted the importance of facilitation as part of core knowledge and skills associated with implementation. Their definition includes skills and knowledge but is much more. It involves key individuals acting as agents for change and ensuring the delivery of the skills and knowledge associated with implementation. This did not happen within the ABA community following the publication of the framework.

A further barrier to the adoption of the UK ABA Autism Education Competence Framework Level 1 (2011) (Appendix B) is lack of understanding of ABA and an inconsistent use of terminology (even within the field). This is discussed below as it has implications across all factors involved in implementation.

Six years later, the contribution that this work has made to the field of behaviour analysis has, arguably, been less in the support of children with autism, and more in the support of individuals with learning disabilities at risk of challenging behaviour. This is



because the development of the UK PBS Competence Framework was informed by the methods used for the UK ABA Autism Education Competence Framework level 1 (2011). Adoption of the PBS framework within the PBS community appears to have been more successful. I suggest that this is because of the facilitation role played by the PBS Academy – a collection of individuals from universities, provider organisations and the third sector interested in the development of PBS and establishment of best practice when working with children and adults with learning disabilities at risk of behaviour that challenges.

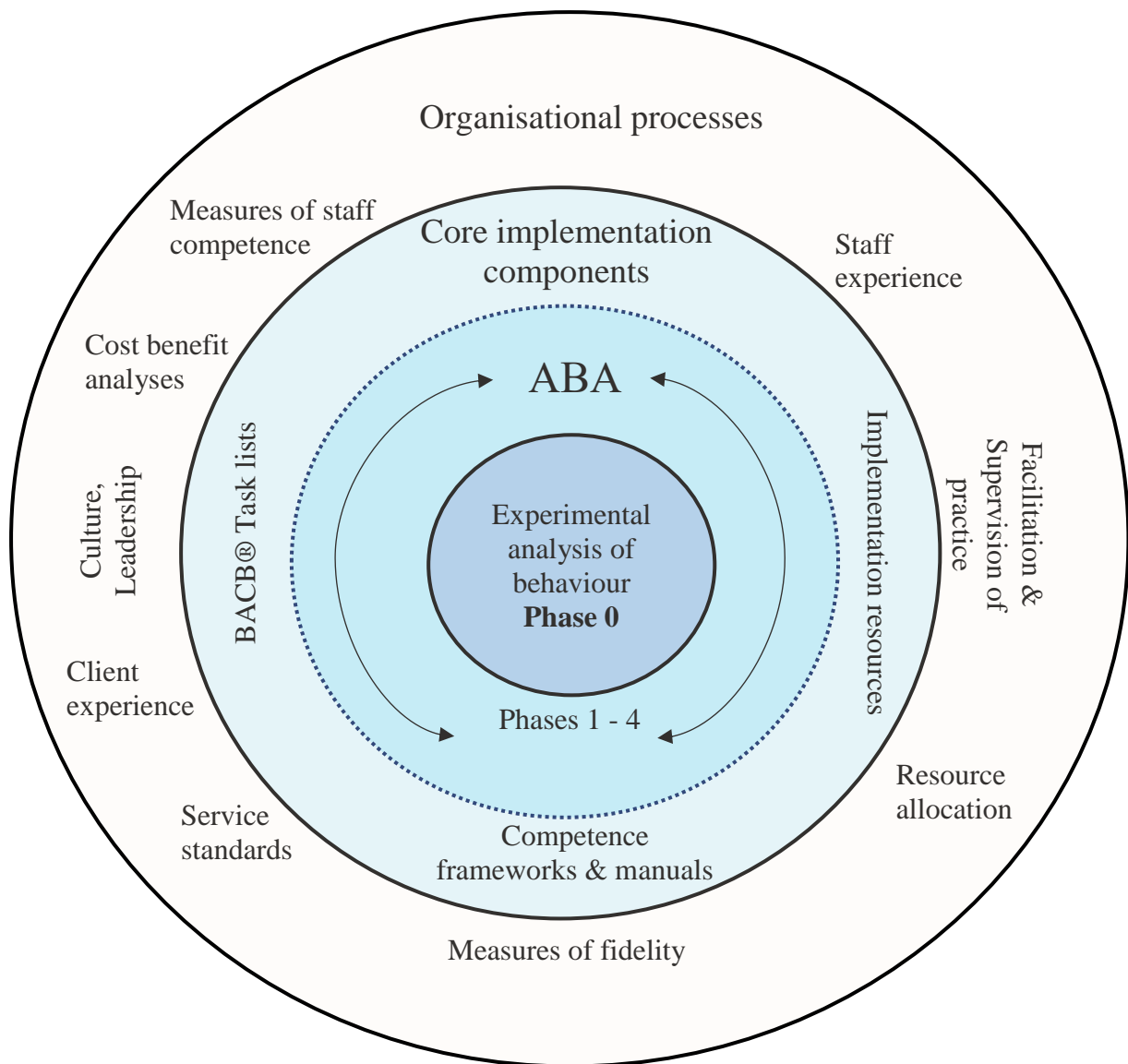
**ii) Organisational processes which embed core knowledge and skills into practice.**

Organisational factors are key to ensuring that core implementation components of an intervention are delivered correctly and consistently. They include developing a culture that promotes implementation (Rycroft-Malone et al., 2005) and having the necessary infrastructure for training, supervision and outcome evaluation. Being able to measure staff competence is just one example. The research described in Chapter 3 illustrated the difficulties associated with just one aspect of organisation, and highlight why, as Rosenheck (2001) suggests, organisational factors may be the most important of the four implementation factors identified by Fixsen et al., (2004). Three measures of staff competence, based on the UK ABA Autism Education Competence Framework Level 1 (2011) were developed for the study. The construct validity of the measures was established. Convergent validity, however, was not. The implication for practice is that for a comprehensive assessment of staff competence, multiple assessment methods are likely to provide a more complete picture. This is likely to be labour intensive and time consuming. The study also highlighted the difficulty of assessing elements of performance that may be dependent on others. Some of the components of the YMQUI measure, such as the teaching level and content, for example, are the responsibility of those designing the programme that is delivered, and not necessarily by those doing the delivery. It was interesting that the group defined as ‘inexperienced’ had a

higher mean score on the Test of Knowledge than the ‘experienced’ group. This may be the effect of the recency of training. Significantly, it demonstrates the importance of the skills element of the core implementation component which involves the application of knowledge. That comes with experience.

In Chapter 7, concerns on the part of commissioners about the variability in the quality of ABA service providers was highlighted, along with the perceived lack of standards of ABA provision. There is a clear need for the ABA community to continue to develop resources and processes that will strengthen organisational capacity to deliver interventions with fidelity both within and across organisations, and to ensure that these are transparent.

Figure 4 illustrates just a few examples of the resources, processes and evidence involved in the embedding of core knowledge and skills into practice. As with core intervention components, I suggest that in respect of organisational processes there are some approaches within ABA and some service providers where this is better developed than others. However, this is not consistent. Our evidence base is particularly limited in terms of cost benefit analyses and an understanding of client experience.



*Figure 4:* Organisational processes which embed core knowledge and skills into practice

**iii) Consumer involvement in, and perceptions of the selection and evaluation of practices.**

Chapter 4 describes the first internet-based survey of autism interventions to report exclusively on data from a UK sample of parents. It is interesting that even though UK guidance is not in line with guidelines and practice in other parts of the world, the findings

were broadly consistent with previous research conducted elsewhere. Speech and language therapy and visual schedules are routinely offered as part of the education system in the UK, so their use is not surprising. Behaviourally based interventions, however, are not, and yet just under half of all participants were currently using at least one behaviourally based intervention. When the currently using and used in the past data were combined, the majority of participants had experience of a behaviourally based intervention. We know from chapters 6 and 7 that parental requests are a key driver of provision in the commissioning of services for children with autism. This may account for the survey findings. This is interesting because of the importance placed by Rycroft-Malone et al., (2004) of consumer perceptions in the decision-making process (see Figure 5). The findings in Chapter 5 suggest however, that the perceptions of ABA amongst parents are not uniform. Experience of any behaviourally-based approach, including ABA, was a significant predictor of P-BAA scores, as were parent education, household income and child diagnosis; where experience of a behaviourally-based approach, higher levels of education and income and children at the more 'severe' end of the autism spectrum were associated with more positive beliefs about ABA. As already noted above, it is not possible to be sure whether more positive beliefs about ABA contributed to parents' intervention choices or whether exposure to behavioural interventions may lead to more positive beliefs about ABA, as the survey examined the use of interventions and did not ask about the decision-making process. We know however, that many parents have no option but to conduct research into autism interventions themselves. This was reflected in observations in Chapter 7 where commissioners questioned the basis upon which parents' request ABA, referring to marketing from ABA providers, and anecdotal evidence from other parents or on websites. The demographic characteristics suggest that the cohort of parents with more positive beliefs of ABA is not representative of the wider community. Access to information, both from an education and economic point of view

appears to be a factor; and viewing that information in relation to socio-economic factors especially where there may be financial costs to the families themselves is likely to also be important. The recent changes to SEND legislation that bring the UK in line with practices elsewhere with an emphasis on parental involvement in the decision-making process, should benefit the field of behaviour analysis. Parents as a group within “informed and enabling communities” have a key role to play in respect of ABA implementation (arguably EIBI or IBI for most parents). However, whilst this may serve to facilitate dissemination amongst a cohort of parents it may also serve as a barrier amongst others. There is a need for the behaviour analytic community to find a way of engaging with, and disseminating information to, a broader cohort of parents.

In respect of those involved in the commissioning of services in the support and education of children with autism, the findings were also mixed. The positive findings for the behaviour analysis field were a general acknowledgement that behavioural interventions are effective and, arguably more pertinent, experiencing good practice can favourably change a person’s perception of behaviourally based interventions. This seems to be consistent with the findings reported in Chapter 4 where parental experience of behavioural interventions led to more positive beliefs, although, as already noted it may be that parents using behavioural interventions were doing so because of their positive beliefs. Commissioners were committed to respecting parental wishes and showed evidence of developing ABA services in-house to meet a demand, despite the practical difficulties that they described when trying to deliver ABA within mainstream provision. Developing services was partly financially driven. It reflects the recognition that parents are successfully getting ABA included in EHCPs and, if not available locally, authorities are having to seek costly out-of-area placements. The practical difficulties and poor perceptions of ABA were, however, clearly articulated. Given the small sample, and the likelihood that those who chose to respond did so because of a

willingness to discuss behavioural interventions, it is possible that in other areas, these less favourable views are more persuasive.

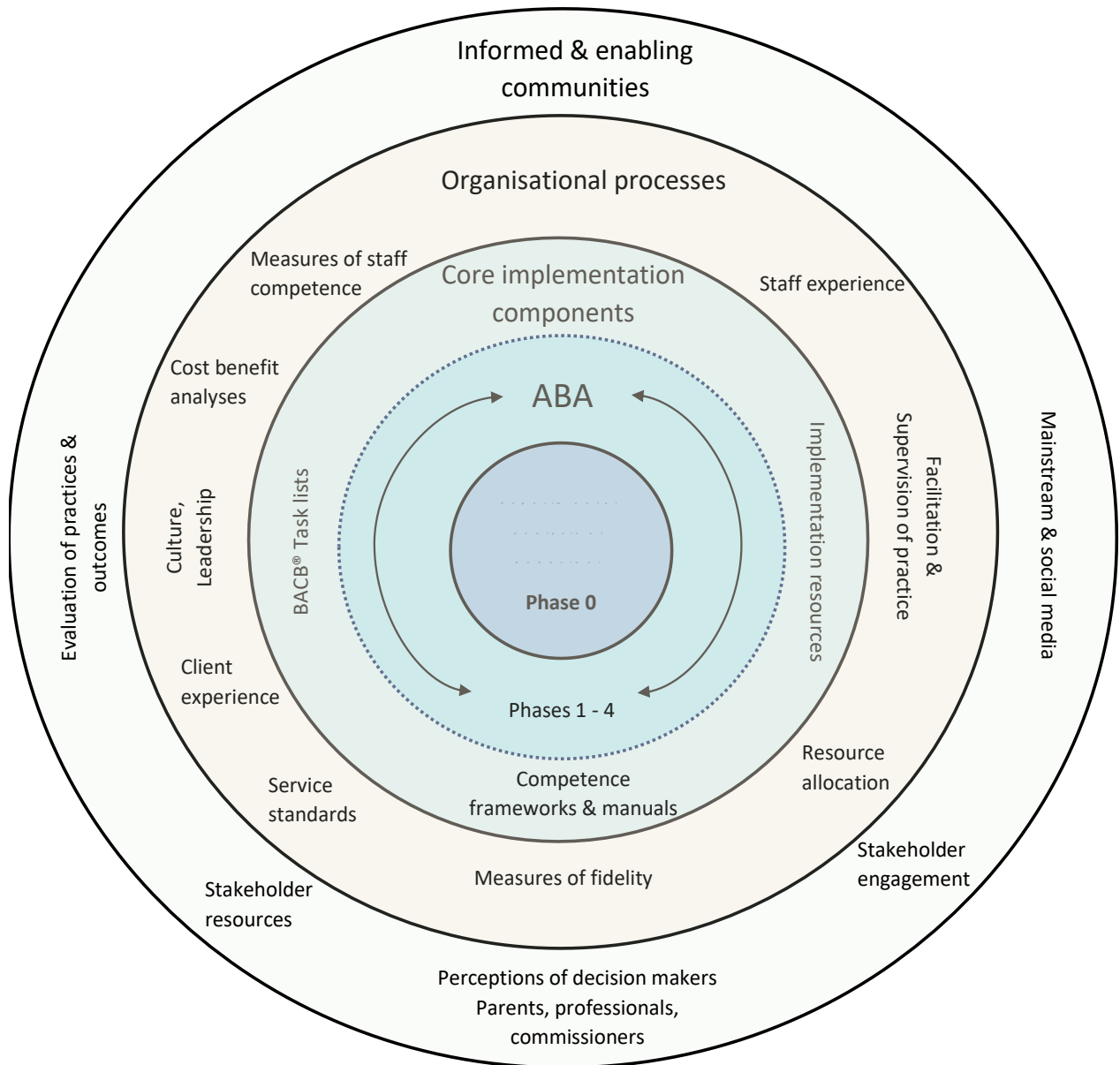


Figure 5: Informed and enabling communities: Consumer involvement in, and perceptions of the selection and evaluation of practices

What was particularly interesting in this study was the difference in perceptions between ABA and PBS. PBS is actively sought-after in some local government areas and schools because it is a solution to meeting specific children's needs (those presenting with challenging behaviour) which standard provision currently does not provide for. And because it is brought in by commissioners within the current framework of provision, the practical difficulties of implementation that are associated with ABA, are less apparent. Arguably commissioners as a group within "informed and enabling communities" are influential in respect of PBS implementation. And for a cohort of commissioners (those who have seen good examples of ABA and those in areas experiencing high parental demand; but see limitations below) this is also the case in respect of ABA implementation. The implications for behaviour analysis is that we need to pay attention to the information that is available to key decision makers and take note of their perceptions. It is an area that has not received much attention to date.

#### **iv) The wider national policy and regulatory framework.**

The relative lack of national policies and guidance in respect of the support and education of children with autism in the UK (apart from the SIGN guidance for ASD interventions) (SIGN, 2016) has already been noted. There is also no guidance in respect of the commissioning of autism education services (NAS, 2016). And, although the SEND Code of Practice (2015) acknowledges the importance of evidence-based decision-making and requires joined up working across health and education which implies that any health-related guidance should be taken into consideration within autism education, Chapter 6 clearly identified that this joined up working is not yet happening in practice.

Interestingly, however, the national policy and regulatory framework for PBS is potentially enabling as PBS and/or its components have been recommended in several policy

documents and professional guidelines (Gore et al., 2013; Denne et al., 2015). This may be reflected in the findings in Chapter 7 that some local authorities are actively seeking PBS as a solution to the challenging behaviour of children with autism.

### **ABA and category errors**

It was noted above that some of the approaches that fall under the ABA umbrella may be further developed in terms of the implementation factors identified by Fixsen et al., (2005) and Rycroft-Malone et al., (2004) than others. Arguably, for instance, PBS has fared better than ABA in the national policy arena. The history of ABA in the UK as an intervention in the support and education of children with autism was described in Chapter 2. It was directly influenced by the growth in the number of behavioural and educational ‘interventions’ or ‘packages’ offered in the support and education of people with autism (Dawson et al., 2010) following the publication of the Lovaas study (Lovaas, 1987). I suggest that those early programmes (all home programmes), in the UK were examples of EIBI. They were, however, called ABA. Parents who had been involved in setting up home programmes went on to set up “ABA schools” (Griffith, Fletcher & Hastings, 2012). Now described within the field as comprehensive models of ABA service delivery (Lambert-Lee et al., 2015), to the wider world what is offered in these schools is still called ABA (Chapter 7). The field of behaviour analysis has failed to make clear to the outside world, the distinction between ABA as an applied branch of the science of behaviour analysis and the different approaches and procedures that are based on ABA (Smith, 2013). This has translated into a lack of understanding on the part of consumers. It is reflected, for example, in Chapter 5 in which there was the least agreement with the statement ‘ABA can be used successfully with older children and teenagers’, suggesting that a lack of understanding about the applicability of behavioural educational approaches across the lifespan; and in Chapter 7 in which an understanding of the wider potential of the field of behaviour analysis in supporting and



educating children with autism (academic skills, communication skills, fluency) was missing; as well as an understanding that PBS, as with ABA, is grounded in the science of behaviour analysis, even though PBS was recognised as a ‘behavioural intervention’.

### **ABA implementation research model**

It is clear from the discussion above that the translation of basic research into practice that is effective, sustainable, and leads to meaningful outcomes is complex. Some models imply a linear process, others a series of interrelated factors. Although it appears from the research findings that implementation may be possible without having satisfied all the factors involved, the longer-term sustainability of interventions may be questionable. I propose an ABA implementation research model (see figure 6) based on the factors identified by Fixsen et al., (2005) and Rycroft-Malone et al., (2004) and including the continuum of evidence proposed by Thornicroft et al., (2011). It suggests that implementation involves different, but interrelated levels of activities focused on distinct stakeholders. The information required of and by each stakeholder is qualitatively different and it is important to be aware of and plan for this even in the early stages of intervention development. There is a tendency within ABA to suggest that we are a data driven science and that everything we do is therefore evidence-based. That is not enough. Whether developing an intervention to address a specific problem, or a comprehensive model or framework for addressing whole populations, we need to think beyond the point of delivery of that intervention and consider in addition what is needed in terms of organisational management, resources and relevant information for all stakeholders, and experiential and outcomes research. McPhilemy & Dillenberger (2013) amongst others question why, when the evidence base is available to all, guidance in the UK in respect of ABA and autism education does not reflect that in other parts of the world. The model highlights the importance of context and illustrates the fact that what behaviour analysts

consider to be “evidence” is only a small part of a complex process. And this applies to every intervention, approach, and framework within the ABA umbrella.

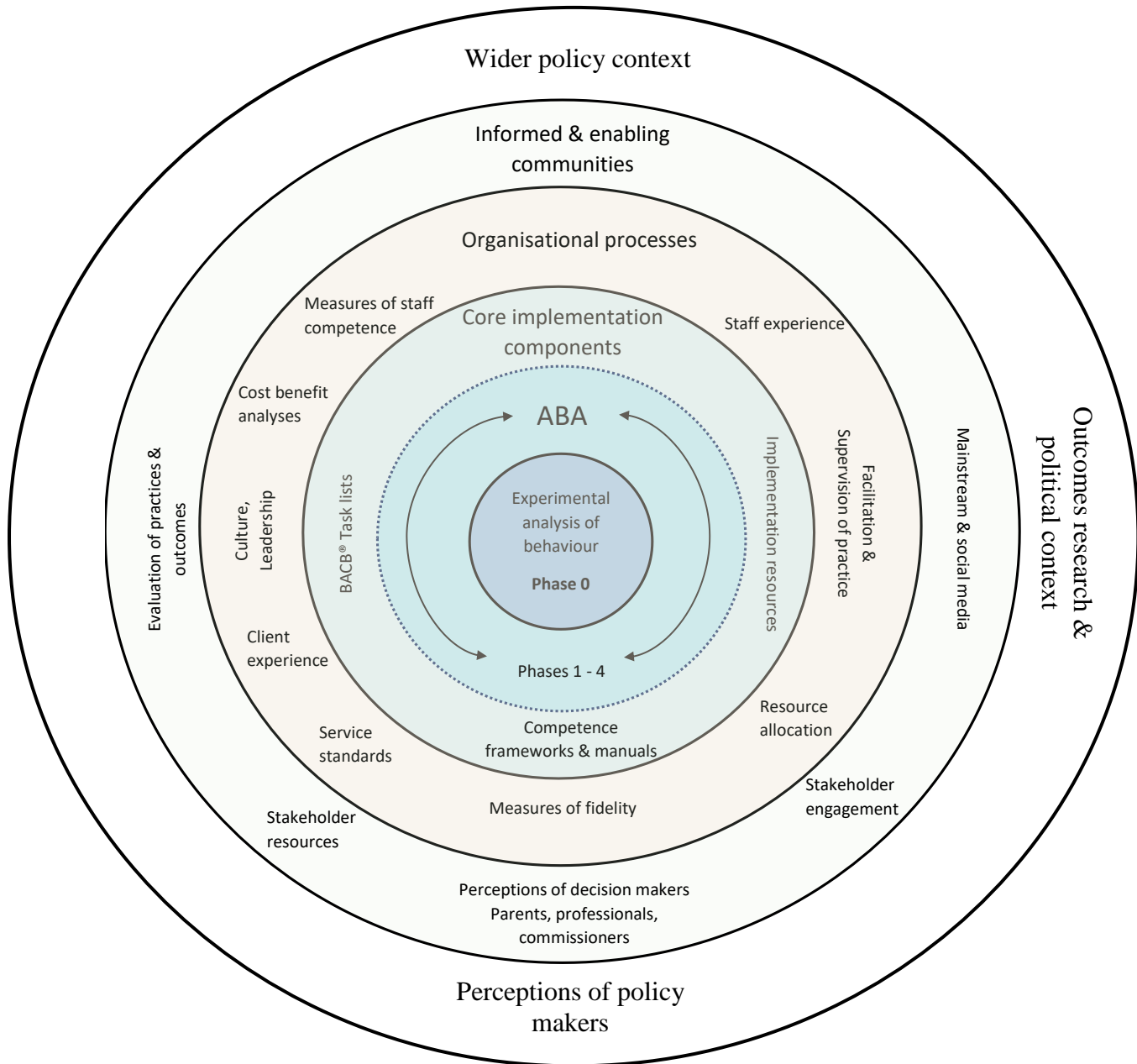


Figure 6: Proposed ABA implementation research model

**Gaps in ABA implementation research**

Where are the gaps in current ABA implementation research? Using the model described above, and based on the research findings, Table 1 summarises potential gaps in ABA implementation research in the support and education of children with autism. PBS is included in the table as an example of one approach within the ABA umbrella to illustrate that the findings, although in respect of ABA as described above are equally applicable to any intervention, comprehensive model or framework based on ABA.

Table 1: Summary of gaps in ABA implementation research (selected examples, based on thesis findings and personal experience)

	<b>ABA as an intervention in the support and education of children with autism</b>		<b>PBS</b>	
	<i>Strengths</i>	<i>Gaps/Weaknesses</i>	<i>Strengths</i>	<i>Gaps/Weaknesses</i>
<b>Basic science – implementation</b>	Experimental analysis of behaviour	<p>Clear understanding of terminology</p> <p>Distinct lack of RCTs, effectiveness studies, implementation</p> <p>Confused terminology surrounding ABA and interventions based upon ABA</p> <p>Lack of research into the components involved in the quality (as opposed to the quantity) of interventions</p>	<p>Experimental analysis of behaviour</p> <p>Model of challenging behaviour (Hastings et al., 2013)</p> <p>Clear definition of PBS (Gore et al., 2013)</p>	<p>Distinct lack of RCTs, effectiveness studies, implementation</p> <p>Lack of research into the components involved in the quality of interventions</p>
<b>Core implementation components</b>	ABA UK Autism Education Competence Framework	Lack of adoption of framework by ABA community	UK PBS Competence framework	<p>Limited explanation of relevance of framework to <i>all</i> professionals involved in the delivery of services</p> <p>PBS still seen by some as intervention (reactive) rather than framework for support</p>

<b>Organisational factors</b>	Measures of staff competence	<p>Lack of materials/resources that map onto framework</p> <p>Lack of cost/benefit analyses</p> <p>A relative lack of research into staff experience</p> <p>Lack of research into client experience</p>	<p>PBS Academy resources</p> <p>Some research into staff experience of working with people with challenging behaviour (Hastings, 2002)</p>	<p>Resources are being developed – but not yet widely implemented</p> <p>Standards not yet adopted</p> <p>Lack of cost/benefit analyses</p> <p>Little research into client experience</p> <p>Lack of standards in training</p>
<b>Informed and enabling communities</b>		<p>Lack of evidence base of decision makers perceptions</p> <p>Lack of evaluation of practices and outcomes</p>		<p>Lack of evidence base of decision makers perceptions</p> <p>Lack of evaluation of practices and outcomes</p>
<b>Wider policy context</b>	SIGN guidelines	<p>ABA not included in NICE autism guidelines</p> <p>Lack of agreement about evidence base for ABA</p> <p>No understanding of perceptions of policy makers</p>	<p>PBS cited in: Ensuring Quality Services; Positive and Proactive Care: Reducing the need for Restrictive Interventions; A Positive and Proactive Workforce; and Supporting Staff who work with people who Challenge Services.</p>	<p>Currently no legislative/regulatory levers that relate to PBS</p> <p>NICE guidelines for Challenging Behaviour do not cite PBS – rather they include components of PBS</p>

### **Limitations of the studies and recommendations for future research**

The thesis has explored factors which models of implementation research suggest are key to the uptake of evidence-based practice. The models explored were primarily based upon the work of Fixsen et al., (2005) and Rycroft-Malone et al., (2004). Over the course of the thesis it became clear that the continuum of evidence as proposed by Thornicroft et al., (2011) which provides the starting point for the models proposed by Fixsen et al., (2005) and Rycroft-Malone et al., (2004) is not yet complete. This was not explored. There is a clear need for future research to address the continuum of evidence outlined by Thornicroft et al., (2013) and, in parallel to this, to build an evidence base around the additional and necessary sources of evidence identified by Rycroft-Malone et al., (2004) noted in Table 1 above.

The lack of clarity around terminology has already been noted. The UK ABA Autism Education Competence Framework Level 1 (2011) described in Chapter 2 states as one of the knowledge competences ‘You know that a number of interventions that are applied in a wide range of settings are based on ABA (e.g., Picture Exchange Communication System (PECS); Pivotal Response Teaching (PRT); Precision Teaching; Functional Communication Training; Self-Management; Modelling)’ (K.8, p. 16). However, with hindsight, we failed to make clear the distinction between ABA as one branch of the science of applied behaviour and that the competencies listed within the framework are used across many different service delivery models and with different populations. Given the importance noted of the perceptions of decision makers, it is essential that the behaviour analytic community develops a consistent story and use of terminology to describe the field as well as develop relevant frameworks and intervention manuals for each of the service delivery models and interventions it seeks to disseminate. EIBI seems a good place to start.

Chapter 3 highlighted a gap in current research within the field of behaviour analysis into the quality of intervention. It focused on just one aspect of quality – measuring staff competence. It would have been interesting to have compared the group that received competence based training with the group that had received training as usual, to assess the impact of competence based training. However, this was not possible within the parameters of the ethical approval given and would have involved too many confounding variables. It would also have been useful to go on to evaluate the effects of staff competence on pupil outcomes. Staff training and the relationship between the quality of intervention and outcomes are both under researched areas (see Chapter 3).

The internet-based survey, discussed in chapters 4 and 5 is not likely to be representative of all parents of children with autism in the UK. Access to the internet was a limiting factor. The survey was long and although attempts were made to make it as readable as possible it was potentially limiting for a parent with low educational attainment. Furthermore, although the data did include parents who were not using behavioural interventions, the survey itself was explicitly focused in several sections on behavioural interventions. Thus, parents with a reasonably positive perception of ABA may have been more likely to participate.

With the survey itself, parents were not asked about the decisions that led to interventions being used or about the factors that influence decision-making. Many parents were unsure about their beliefs in response to several of the items included in the P-BAA. Further investigation into the qualitative nature and relative importance of parental beliefs about ABA is needed. Critically, we have no information concerning the relative weighting of parents' beliefs in decision making about interventions nor whether certain beliefs serve as barriers to dissemination of ABA approaches. For example, parents may agree that ABA places pressure on family life but for some this may be worth enduring because of the real or

anticipated benefits (Tzanakaki et al., 2012) - for others this may be a decisive factor in deciding not to use ABA.

The qualitative study in which those involved in the commissioning of services in the support and education of children with autism were interviewed was a relatively small sample size and the sample was not homogenous. Invitation letters were sent to individuals and local governments with a publicly stated antipathy to ABA as well as those who appeared to support the commissioning of behavioural interventions. Many did not respond. It is possible that those who chose to respond were open to the discussion despite any misgivings that they may have had. Further research might focus on interviewing local authority commissioners and head teachers as separate groups.

In this thesis, key factors relating to implementation, informed by theoretical models of implementation have been explored in relation to ABA in the support and education of children with autism. A model of implementation for ABA has been proposed. This highlights some of the gaps that currently exist in respect of ABA. Underlying all of this is the key assumption that better implementation ultimately leads to better dissemination of ABA for children with autism and better outcomes for children with autism and their families. The relationship between implementation and outcomes however has not been explored. It is of course a key part of the implementation process highlighted by Rycroft-Malone et al (2004) in their definition of the importance of context and part of both organisational processes and the wider policy context outlined by Fixsen et al., (2005). Any further phase of research needs to focus on an evaluation of practices and outcomes. One of the difficulties of achieving this is the lack of resources within practice based settings to conduct high quality research; and, in turn, the difficulty of accessing practice based settings on the part of researchers. One way around this is the establishment of communities of



academics, research practitioners and those in the field to develop a practice based research agenda. One such example is discussed in the reflections below.

### **Personal reflections**

I came relatively late to the field of behaviour analysis having worked in finance for several years. I took a career break and returned to university to do a degree in psychology. My intention had been to go back into business and try to make the corporate world a better place! That changed when I started, alongside my studies, to work as a volunteer with a child with autism. He was on an ABA programme managed out of the US. At the time, I was living in Paris. The first thing that struck me was that what I was being asked to do worked! The quality of life for his family was transformed as he began to communicate, learnt to eat by himself, follow simple instructions, and critically overcame his fear of the lift – a fear which had left him incapable of leaving his apartment on the 4th floor.

The second thing that stuck me was that ABA-based interventions should be available for all who choose them. But this was not the case. Why not? This question became the focus of my interest in behaviour analysis and I am extremely fortunate to have had the opportunity to explore it within the research reported here. The inquiry that we have gone through feels slightly back to front. If I knew then what I know now I may have tackled the subject differently. The opportunity to explore different research methods has been educational but also frustrating – just as I think I am coming to grips with a methodology I have had to go through a whole new learning experience. And yet this is the very essence of the research question. “Evidence” comes in all forms – it is both quantitatively (as you move along the Thornicroft et al., (2011) continuum), and qualitatively (as seen in the PARIHS model, Rycroft-Malone et al., 2004) different. And all sources of evidence are important. The study that I found the most difficult, interviewing those involved in the commissioning of services

in the support and education of children and young people with autism, was also the most enlightening and the most satisfying.

Doing this thesis part-time has meant that I have had the opportunity to put into practice some of the findings along the way. I manage the Sharland Foundation Developmental Disabilities ABA Research and Impact Network (SF-DDARIN) - a network of like-minded research practitioners, the purpose of which is to increase the reach and impact of behaviourally based interventions for children and adults with intellectual disabilities and/or autism to support their independence and increased quality of life. This is an innovative project. It brings together an extended network of academics, researchers and those working in the field across the UK. The focus is primarily on implementation research – to give practice settings access to interventions; to give researchers access to practice settings in which to develop and test their research; and to give researchers the opportunity at an early stage in intervention development to think about some of the practical issues involved in implementation. The infrastructure and collaborative processes that are being developed as part of the network could provide an interesting model of implementation for the field.

### **Conclusions**

This thesis has asked the question of how basic research moves out of clinical settings and into practice that is effective, sustainable, and leads to meaningful outcomes. It is relevant to the field of behaviour analysis which has successfully developed an applied branch of the science (Baer, Wolf & Risley, 1968), but has yet to be fully acknowledged in guidance and practice across the populations and areas it seeks to help. The number of factors that are involved in the successful and widespread implementation of evidence-based practice are considerable. The implications for the field are clear. There is a need to clarify an

understanding of terminology. There is a need to address evidence gaps across a continuum relating to clinical practice as well as other forms of evidence that contribute to decision-making. There is a need to shift attention to outcomes-based research. Some approaches within ABA have done better than others: the PBS community has embraced the UK PBS Competence framework and the need to develop resources and process to embed it to practice in a way that the ABA community has failed to do with the UK ABA Autism Education Competence Framework Level 1 (2011). Arguably, however, the evidence base of EIBI is stronger than that of PBS. All approaches within ABA would do well to learn from the experiences of others. Finally, and this is a personal reflection born out of my own experiences to date, the field of behaviour analysis in the UK is a divided community and, these divisions, risk being the greatest barriers to dissemination. Our own behaviours need to change if we are to address the gaps in implementation research and get what we want - increased access to behaviourally based interventions and better outcomes for all children with autism and their families.

## References

- Arntzen, E., Hughes, J. C., Pellon, R. & Moderato, P. (2009) Behavior Analysis in Europe. An update. *European Journal of Behavior Analysis* 10, 95-100
- Autism programme quality indicators (2001) New York State Education Department, retrieved from <http://www.p12.nysed.gov/specialed/autism/apqi.htm>
- Autism spectrum disorders Training policy and framework (2006) West Midlands Regional Partnership.
- Autism Speaks. (2014). Retrieved August 2014 from <http://www.autismspeaks.org/what-autism/treatment/applied-behavior-analysis-aba>
- Babel, D., Martin, G., Fazzio, D., Arnal, L., & Thomson, K. (2008). Assessment of the reliability and validity of the discrete-trials teaching evaluation form. *Developmental Disabilities Bulletin*, 36, 67–80.
- Baer, D., Wolf, M., & Risley, R. (1968) Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis* 1, 91 -97
- Baird, G., Simonoff, E., Pickles, A., Chandler, S., Loucas, T., Meldrum, D., Charman, T. (2006) Prevalence of disorders of the autism spectrum in a population cohort of children in South Thames: the Special Needs and Autism Project (SNAP). *The Lancet* 368 (9531), 210–215.
- Barrett, B., Byford, S., Sharac, J., Hudry, K., Leadbitter, K., Temple, K., Aldred, C., Slonims, V., Green, J., PACT Consortium. (2012) Service and wider societal costs of very young children with autism in the UK. *Journal of Autism and Developmental Disorders* 42 (5), 797–804.

- Behaviour Analyst Certification Board *BCBA & BCaBA Behaviour Analyst Task List – Third Edition*, retrieved from <http://www.bacb.com/Downloadfiles/TaskList/207-3rdEd-TaskList.pdf>
- Behaviour Analyst Certification Board *Autism Task List*, retrieved from <http://www.bacb.com/Downloadfiles/AutismTaskList/708AutismTaskListF.pdf>
- Behavior Analyst Certification Board. (2014). *Applied Behavior Analysis Treatment of Autism Spectrum Disorder: Practice Guidelines for Healthcare Funders and Managers*. Retrieved 18 April 2017 from [https://bacb.com/wpcontent/uploads/2016/08/ABA\\_Guidelines\\_for\\_ASD.pdf](https://bacb.com/wpcontent/uploads/2016/08/ABA_Guidelines_for_ASD.pdf)
- Behavior Analyst Certification Board. (2009). *Behavior Analyst Task List, Fourth edition*. Retrieved August 2014, from [http://www.bacb.com/Downloadfiles/TaskList/BACB\\_Fourth\\_Edition\\_Task\\_List.pdf](http://www.bacb.com/Downloadfiles/TaskList/BACB_Fourth_Edition_Task_List.pdf)
- Behavior Analyst Certification Board (2017) *Professional and Ethical Compliance Code for Behavior Analysts*. Retrieved June 2017 from <https://bacb.com/wp-content/uploads/2017/05/170525-compliance-code-english.pdf>
- Boon, J., & Van der Klink, M.(2001) Scanning the concept of competencies: how major vagueness can be highly functional. *2<sup>nd</sup> Conference on HRD Research and Practice across Europe*, University of Enschede, January, cited in Garavan, T.N., & McGuire, D.(2001) Competencies and work place learning: some reflections on the rhetoric and the reality. *Journal of Workplace Learning* 13 (4), 144-163.
- Boyatzis, R.E. (2008) Competencies in the 21<sup>st</sup> century. *Journal of Management Development* 27 (1), 5 – 12.
- Boyatzis, R.E. (1982) *The Competent Manager: A Guide for Effective Management*. Wiley, New York, NY., cited in Garavan, T.N., & McGuire, D.(2001) Competencies and

- work place learning: some reflections on the rhetoric and the reality. *Journal of Workplace Learning* 13 (4), 144-163.
- Braun, V., & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* (3), 77-101.
- Buescher, A.V.S., Zuleyha, C., Knapp, M., & Mandell, D.S. (2014). Costs of Autism Spectrum Disorders in the United Kingdom and the United States. *Journal of the American Medical Association Pediatrics* 168 (8), 721–28.
- Carbone, V. J., Zecchin, G., O'Brien, L. (2014). Effective Teaching Procedures Evaluation Form. Retrieved September 2014, from <http://www.carboneclinic.com/wp-content/uploads/2012/08/InstructionalControl.pdf>
- Carr, J. E., & Firth, A. M. (2005) The Verbal Behavior Approach to Early and Intensive Behavioral Intervention for Autism: A Call for Additional Empirical Support, *Journal of Early and Intensive Behavior Intervention*, 2 (1) 18 – 27.
- Carroll, C., Patterson, M., Wood, S., Booth, A., Rick, J., & Balain, S. (2007). “A conceptual framework for implementation fidelity.” *Implementation Science* 2: doi:10.1186/1748-5908-2-40.
- Cassidy, A., McConkey, R., Truesdale-Kennedy, M., Slevin, E. (2008) Preschoolers with autism spectrum disorders: the impact on families and the supports available to them. *Early Child Development and Care* 178 (2), 115–128.
- Chartered Institute of Personnel and Development (2007) Survey: *Learning and Development*
- Chiesa, M. (2005) ABA is not “A Therapy for Autism” in Keenan, M., Henderson, M., Kerr, K.P., & Dillenberger, K. (Eds) *Applied behaviour analysis and autism: Building a future together* (pp. 225 – 240) London. Jessica Kingsley Publishers.

- Cognitive Behaviour Therapy Competencies for people with anxiety and/or depression disorders (1999 – 2005) University College, London, retrieved from [http://www.ucl.ac.uk/clinical-psychology/CORE/CBT\\_Framework.htm](http://www.ucl.ac.uk/clinical-psychology/CORE/CBT_Framework.htm)
- A Competency Based Curriculum for Specialist Training in Psychiatry (2010), Royal College of Psychiatrists, retrieved from <http://www.rcpsych.ac.uk/training/curriculum2010.aspx>
- Cooper J.O, Heron T.E, Heward W.L. (2007) *Applied behavior analysis* (2nd ed.) Upper Saddle River, NJ: Pearson.
- Davies, B.J., Smith, T., and Donahoe, P. (2002). Evaluating Supervisors in the UCLA Treatment Model for Children With Autism: Validation of an Assessment Procedure. *Behavior Therapy*, 33, 601-614.
- Davies, H.T.O., Nutley, S.M. and Smith, P.C. (eds) (2000) *What works? Evidence-based policy and practice in public services*. Bristol: Policy Press.
- Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., Donaldson, A., Varley, J. (2010). Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model. *Paediatrics*, 125 (1) 17-23
- Denne, L.D., Hastings, R.P., Hughes, J.C., Bovell, V. & Redford, L. (2011). Developing a competence framework for ABA and Autism: What can we learn from others? *European Journal of Behavior Analysis*, 12 (1) 217-230.
- Denne, L.D., Hastings, R. P., Hughes, J.C. (2017) Common approaches to intervention for the support and education of children with autism in the UK: An internet-based parent survey. *International Journal of Developmental Disabilities*  
doi/full/10.1080/20473869.2016.1275439
- Denne, L. D., Hastings, R. P., & Hughes, J. C. (2017)<sup>b</sup>. UK parents' beliefs about applied behaviour analysis as an approach to autism education, *European Journal of Special Needs Education*, DOI: 10.1080/08856257.2017.1297568

- Denne, L.D., Noone, S.J., Gore, N.J., Toogood, S., Hughes, C.J., Hastings, R.P., Allen, D., Baker, P., & McGill, P. (2013), Developing a core competencies framework for Positive Behaviour Support: Issues and recommendations. *International Journal of Positive Behavioural Support* 3 (2) 24-31.
- Denne, L., Jones, E., Lowe, K., Jackson Brown, F., and Hughes, C. (2015) Putting positive behavioural support into practice: the challenges of workforce training and development, *International Journal of Positive Behavioural Support*, 5, 2, 43–54
- Department for Education, Department for Health (2015) *Special educational needs and disability code of practice: 0 to 25 years Statutory guidance for organisations which work with and support children and young people who have special educational needs or disabilities*. London. retrieved 18 April 2017 from <https://www.gov.uk/government/publications/send-code-of-practice-0-to-25>
- Desforges, C. and Abouchaar, A. (2003) *The Impact of Parental Involvement, Parental Support and Family Education on Pupil Achievement and Adjustment: A Literature Review*, London: Department for Education and Skills.
- Devisch, M. (1998) The Kyoto People Management Model. *Total Quality Management* 9 (Nos 4-5), 62-65
- Dillenburger, K., Keenan, M., Dogherty, A., Byrne, T., & Gallagher, S. (2010). Living with children diagnosed with Autism Spectrum Disorder: Parental and professional views. *British Journal of Special Education*, 37, 1-25.
- Drake, R. E., Gorman, P., & Torrey, W. C. (2002). Implementing adult “tool kits” in mental health. Paper presented at the NASMHPD *Conference on EBPs and Adult Mental Health*, Tampa, FL.
- Dreyfus, H.L., & Dreyfus, S.E. (1986) *Mind over machine: the power of Human intuition and expertise in the age of the computer*. Oxford, Basil Blackwell.



- Dunlap, W.P., Cortina, J.M., Vaslow, J.B., Burke, M.J. (1996). Meta-Analysis of Experiments With Matched Groups or Repeated Measures Designs. *Psychological Methods* 1, (2), 170-177
- Eikeseth, S., Hayward, D. W., Gale, C. M., Gitlesen, J. P., & Eldevik, S. (2009). Intensity of supervision and outcome for preschool aged children receiving early and intensive behavioral interventions: A preliminary study. *Research in Autism Spectrum Disorders*, 3, 67–73.
- Eldevik, S., Hastings, R. P., Jahr, E., & Hughes, J. C. (2012). Outcomes of behavioral intervention for children with Autism in mainstream pre-school settings. *Journal of Autism and Developmental Disorders*, 42, 210-220.
- Eldevik, S., Hastings, R.P., Hughes, J.C., Jahr, E., Eikeseth, S., Cross, S. (2009) Meta Analysis of Early Intensive Behavioural Intervention for Children with Autism. *Journal of Clinical Child and Adolescent Psychology* 38 (3), 439 – 450.
- Eldevik, S., Hastings, R. P., Hughes, J.C., Jahr, E., Eikeseth, S., & Cross, S. (2010). Using participant data to extend the evidence base for intensive behavioral intervention for children with autism. *American Journal on Intellectual and Developmental Disabilities*, 115, 381-405.
- Emerson, E., & Hatton, C. (2008) Estimating Future Need for Adult Social Care for People with Learning Disabilities in England. Project Report. Centre for Disability Research, Lancaster University, Lancaster.
- Fisher, W. W., Piazza, C. C. & Roane, H. S. (2011) *Handbook of Applied Behavior Analysis*. New York: Guildford Press.
- Fixsen, D.L., & Blase, K.A. (1993). Creating New Realities: Program Development and Dissemination. *Journal of Applied Behavior Analysis* 26, 597-615.

- Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M. & Wallace, F. (2005). *Implementation Research: A Synthesis of the Literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network
- Flanders, S. C., Engelhart, L., Whitworth, J., Hussein, M. A., Vanderpoel, D. R., & Sandman, T. (2006). The economic burden of pervasive developmental disorders in a privately insured population. *Managed Care Interface*, 19, 39–45.
- Foran, D., Hoerger, M., Philpott, H., Walker Jones, E., Hughes, J.C, & Morgan, J. (2015). Using applied behaviour analysis as standard practice in a UK special needs school. *British Journal of Special Education*, 42 (1), 34-52
- Frith, H. & Gleeson, K. (2004) Clothing and embodiment: men managing body image and appearance. *Psychology of Men and Masculinity* (5), 40 -48.
- Frost, L., & Bondy, A. (2002) *The Picture Exchange Communication System training manual*, 2nd ed. Pyramid Educational Consultants, Inc.
- Garavan, T.N., & McGuire, D.(2001) Competencies and work place learning: some reflections on the rhetoric and the reality. *Journal of Workplace Learning* 13 (4), 144-163.
- Gearing, R.E., El-Bassel, N., Ghesquiere, A., Baldwin, S., Gillies, J., Ngeow, E. (2011). Major ingredients of fidelity: a review and scientific guide to improving quality of intervention research implementation. *Clinical Psychology Review*, 31 (1), 79-88.
- Goin-Kochel, R.P., Myers, B.J., and Mackintosh, V.H. (2007) Parental reports on the use of treatments and therapies for children with autism spectrum disorders. *Research in Autism Spectrum Disorders* 1 (3), 195–209.
- Goodall, J. and Vorhaus, J. (2011) DFE-RR176. *Review of best practice in parental engagement*. London: Department for Education.

- Gore, N.J., McGill, P., Toogood, S., Allen, D., Hughes, C., Baker, P., Hastings, R.P., Noone S., & Denne, L. (2013). Definition and Scope for Positive Behaviour Support. *International Journal of Positive Behavioural Support* 3 (2) 14-23.
- Gough, D.A. (2004) Systematic research synthesis to inform the development of policy and practice in education. In Thomas, G, Pring R (eds): *Evidence-based Practice*. Buckingham: Open University Press.
- Green, V. A. (2007). Parental experience with treatments for autism. *Journal of Developmental and Physical Disabilities*, 19, 91–101.
- Green, V.A., Pituch, K.A., Itchon, J., Choi, A., O'Reilly, M, & Sigafos, J. (2006). Internet survey of treatments used by parents of children with autism. *Research in Developmental Disabilities*, 27, 70-84.
- Griffith, G.M., Fletcher, R. & Hastings, R.P. (2012). A national UK census of applied behaviour analysis school provision for children with autism. *Research in Autism Spectrum Disorders*, 6, 798-805.
- Grindle, C. F., Carl Hughes, J., Saville, M., Huxley, K., & Hastings, R. P. (2013). Teaching early reading skills to children with autism using MimioSprout Early Reading. *Behavioral Interventions*, 28 (3), 203-224
- Grindle, C.P., Hastings, R.R., Saville, M., Hughes, J.C., Huxley, K., Kovshoff, H., Griffith, G.M., Walker Jones, G., Devonshire, K. & Remington, B. (2012). Outcomes of a behavioral intervention model for children with autism in a mainstream school setting. *Behavior Modification*, 36 (3), 298-319.
- Grindle, C.F., Kovshoff, H., Hastings, R. P, & Remington, B. (2009). Parents' experiences of home-based applied behaviour analysis programs for young children with autism. *Journal of Autism and Developmental Disorders*, 39, 42-56.

- HAS et Anesm (2012) Autisme et autres troubles envahissants du développement : interventions éducatives et thérapeutiques coordonnées chez l'enfant et l'adolescent. *Service Bonnes pratiques professionnelles (HAS) et service Recommandations (Anesm)*
- Hamel, B., & Prahalad, C.K. (1993) Strategy as Stretch and Leverage. *Harvard Business Review*, March – April, 75 – 84, cited in Garavan, T.N., & McGuire, D.(2001) Competencies and work place learning: some reflections on the rhetoric and the reality. *Journal of Workplace Learning* 13 (4), 144-163.
- Hammersley, M. (2001) Some Questions about Evidence-based Practice in Education. Paper presented at the symposium on 'Evidence-based practice in education' at the *Annual Conference of the British Educational Research Association*, University of Leeds, England, September 13-15, 2001.
- Harrison, C. (2016) Two years on: The impact of the SEN Reforms on Local Authorities, in *Sen Policy Research Forum (2016) Policy Paper: An early review of the new SEN / disability policy and legislation: where are we now?* retrieved 18 April 2017 from <http://blogs.exeter.ac.uk/sen-policyforum/files/2016/11/Early-review-final-paper-Nov-16.pdf>
- Hastings, R.P. (2015) Early Intensive Behavioural Intervention: Outcomes for children with Autism and their parents, Invited Speaker EABG, London, April 2015.
- Hastings, R.P. (2002) Do challenging behaviors affect staff psychological well-being? Issues of causality and mechanism. *American Journal on Mental Retardation*, 107, 455-467.
- Hastings, R.P., Allen, D., Baker, P., Gore, N.J., Hughes, C.J., McGill, P., Noone, S.J., & Toogood, S. (2013). A conceptual framework for understanding why Challenging Behaviours occur in people with developmental disabilities. *International Journal of Positive Behavioural Support* 3 (2) 5-13.

- Heflin, L.J., & Simpson, R. L. (1998). Interventions for children and youth with autism: Prudent choices in a world of exaggerated claims and empty promises. Part I: Intervention and treatment option review. *Focus on Autism and Other Developmental Disabilities, 13*, 194–211.
- H M Treasury (2014) *Impact on households: distributional analysis to accompany Budget 2014* Downloaded on 06.03.2016 from [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/293738/budget\\_2014\\_distributional\\_analysis.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/293738/budget_2014_distributional_analysis.pdf)
- Holmes, L. (1992) Understanding Professional Competence: Beyond the Limits of Functional Analysis, paper presented at *IPM Course Tutors' Conference*, July 1992, retrieved from <http://www.re-skill.org.uk/re/skill/profcomp.htm>
- Horton, S. (2000) Introduction – the competency movement: its origins and impact on the public sector. *The International Journal of Public Sector Management, 13* (4), 306 – 318.
- Hornby, G., & Lafaele, R. (2011) Barriers to parental involvement in education: an explanatory model. *Educational review, 63* (1), 37 – 52.
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Council for Exceptional Children, 71*, 165–179.
- Howlin, P., Magiati, I., & Charman, T. (2009). Systematic review of early intensive behavioral interventions for children with autism. *American Journal on Intellectual and Developmental Disabilities 14* (1) 23-41.
- Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry 45* (2), 212–229.

- Hughes, J.C., & Shook, G.L. (2007). Training and certification of behaviour analysts in Europe: Past, present, and future challenges. *European Journal of Behaviour Analysis* 8 (2)
- Humphrey, N. and Squires, G. (2011) *Achievement for All National Evaluation: Final Report*. London: Department for Education.
- Ingham, P., & Greer, R.D. (1992). Changes in student and teacher responses in observed and generalised settings as a function of supervisor observations. *Journal of Applied Behavior Analysis* 25 (1), 153–164.
- Jeanson, B., Thiessen, C., Thomson, K., Vermeulen, R., Martin G., & Yu, C. T. (2010). Field testing of the discrete-trials teaching evaluation form. *Research in Autism Spectrum Disorders*, 4 (4), 718–723.
- Keenan, M. (2010) Evidence-based practice and autism: A political minefield, paper presented at *Inclusion and Supportive Educational Congress. Promoting Diversity and Inclusive Practice*, Queen’s University, Belfast, August 2010
- Keenan, M., Dillenburg, K., Moderato, P. & Rottgers, H.R., (2010) Science for sale in a free market economy: but at what price? ABA and the treatment of autism in Europe. *Behavior and Social Issues*, 19, 124-141.
- Keenan, M., & Dillenburg, K. (2011). When all you have is a hammer ...: RCTs and hegemony in science. *Research in Autism Spectrum Disorders*, 5, 1–13.
- Kerr, K.P., Smyth, P. & McDowell, C. (2003). Precision teaching: Designing effective teaching programmes for children with Autism. *Early Child Development & Care*. 173 (4), 399-410.
- Klintwall, L., Gillberg, C., Bölte, S., & Fernell, E. (2012). The efficacy of intensive behavioral intervention for children with autism: A matter of allegiance? *Journal of Autism and Developmental Disorders* 42 (2) 139 - 140.

- Koegel, L.K., Ashbaugh, K., Koegel, R.L. (2016) Pivotal Response Treatment in Lang, R., Hancock, T.B., & Singh, N.N. (2016) *Early Intervention for Young Children with Autism Spectrum Disorder*, Springer International Publishing, Switzerland.
- Koegel, R. L., Russo, D. C. & Rincover, A. (1977). Assessing and training teachers in the generalized use of behavior modification with autistic children. *Journal of Applied Behavior Analysis*, 10, 197-205.
- Lamb, B. (2009) *Lamb Inquiry, Special Educational Needs and Parental Confidence*. DCFS.
- Lai, M.C., Lombardo, M.V., & Baron-Cohen, S. (2014). Autism. *The Lancet* 383 (9920), 896–910.
- Lambert-Lee, K., Jones, B., O’Sullivan, J., Hastings, P.P., Douglas-Cobane, E, Thomas, E, Hughes, C.J., & Griffth, G.M. (2015) An ABA-based special school for children and adolescents with autism: Model description, and illustrative outcomes. *British Journal of Special Education*, 42, (1) 69-86.
- Landa, R.K., Hansen, B., & Shillingsburg, M.A. (2017). Teaching mands for information using ‘when’ to children with autism. *Journal of Applied Behavior Analysis*, doi:10.1002/jaba.387
- Leaf, R., & McEachin, J. (1999). *A work in progress: Behavior management strategies and a curriculum for intensive behavioral treatment of autism*. New York: DRL Books.
- Lee, D. L., & Axelrod, S. (2005). *Behavior modification: Basic principles (3rd ed.)*. Austin, TX: PRO-ED.
- Lerman, D., Valentino, A.L., & LeBlanc, L.A. (2016) Discrete Trial Teaching in Lang, R., Hancock, T.B., & Singh, N.N. (2016) *Early Intervention for Young Children with Autism Spectrum Disorder*, Springer International Publishing, Switzerland.

- Lovaas, O.I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, 55, 3-9.
- Luiselli, J. K. (Ed.) (2014). *Children and youth with autism spectrum disorder (ASD): Recent advances and innovations in assessment, education, and intervention*. New York, NY: Oxford University Press
- Luiselli, J.K., O'Malley Cannon, B., Ellis, J.T., & Sisson, R.W. (2000). Home-Based Behavioral Intervention for Young Children with Autism/Pervasive Developmental Disorder: A Preliminary Evaluation of Outcome in Relation to Child Age and Intensity of Service Delivery. *Autism* 4; 426
- Macmillan, R. (2010) The third sector delivering public services: an evidence review, *TSRC Working Paper 20*, Birmingham, Third Sector Research Centre.
- Martin, N.T. (2008) Behavioral Intervention for Autism: A survey of UK Service Providers. *ABAI Convention*, Chicago.
- Maurice, C. (1993). *Let me hear your voice*. New York: The Random House Publishing Group.
- McClelland, D. C. (1973) Testing for competence, rather than intelligence. *American Psychologist* 28, 1-14.
- McLagan P. (1996). *Competency systems in the new world of work*. Paper presented at the third international Linkage Inc., conference on Using Competency-Based Tools And Applications To Drive Organizational Performance, Chicago, cited in Schippmann, J.S., Ash, R.A., Battista, M., Carr, L., Eyde, L., Hesketh, B., Kehoe, J., Pearlman, K., Prien, E.P., Sanchez, J.I. (2000) The practice of competency modelling. *Personnel Psychology* 53, 703 – 740.



- McNeish, Scott and Maynard (2012). The use of evidence in commissioning children's services: a rapid review. *National Centre for Social Research. Short Policy Report No. 12/08*
- McPhilemy, C., & Dillenburg, K. (2013). Parents' experiences of applied behaviour analysis (ABA)-based interventions for children diagnosed with autistic spectrum disorder. *British Journal of Special Education, 40* (4), 154-161.
- Miltenberger R. *Behavior modification: Principles and procedures (4th ed.)* Belmont, CA: Wadsworth; 2007.
- Mosier, Amy K. Ms., "Applied Behavior Analysis Techniques: Discrete Trial Training & Natural Environment Training" (2011). *Research Papers. Paper 226*.  
[http://opensiuc.lib.siu.edu/g\\_s\\_rp/226](http://opensiuc.lib.siu.edu/g_s_rp/226)
- Mudford, O.C., Martin, N.T., Eikeseth, S., & Bibby, P. (2000) Parent-Managed Behavioural Treatment for Pre-School Children with Autism: Some Characteristics of UK Programmes. *Research in Developmental Disabilities 22*, 173-182.
- National Autism Center. (2015). Findings and conclusions: National standards project, phase 2. Randolph, MA: Author
- National Autistic Society (2006). *Improving Commissioning Standards in Services for Children and Adults with Autism Spectrum Disorders*, retrieved 18 April 2017 from <http://www.autism.org.uk/about/strategy/2010-strategy/individual-need.aspx>
- National Autistic Society (2016) *School report 2016*, retrieved 18 April 2017 from <http://www.autism.org.uk/schoolreport2016>
- The National Institute for Health and Care Excellence (NICE). (2014) *Support for Commissioning for Autism*, Manchester, UK. retrieved 18 April 2017 from

[www.nice.org.uk/guidance/qs51/resources/support-for-commissioning-for-autism-253717885](http://www.nice.org.uk/guidance/qs51/resources/support-for-commissioning-for-autism-253717885)

The National Institute for Health and Care Excellence (NICE). (2013) *Autism spectrum disorder in under 19s: support and management*, Manchester, UK. retrieved 18 April 2017 from <https://www.nice.org.uk/guidance/cg170>

National Occupational Standards for Psychology retrieved from

[http://www.bps.org.uk/professional-development/nos/nos\\_home.cfm](http://www.bps.org.uk/professional-development/nos/nos_home.cfm)

National Occupational Standards (various) retrieved from <http://www.ukstandards.org.uk/>

Neef, N.A. (1995) Research on training trainers in program implementation: An introduction and future directions. *Journal of Applied Behavior Analysis* 28 (3), 297-299.

Newman, M., Bangpan, M., Kalra, N., Mays, N., Kwan, I., & Roberts, T. (2012)

Commissioning in health, education and social care: Models, research bibliography and in-depth review of joint commissioning between health and social care agencies. *Report. In: Research Evidence in Education Library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Norris, S., Pare, J.-R., & Starky, S. (2006, January 26). Childhood Autism in Canada: Some Issues Relating to Behavioral Intervention. *Parliamentary Information and Research - Service D'Information Et De Recherche Parlementaire*, 1-9.

Ortlipp, M. (2008) Keeping and Using Reflective Journals in the Qualitative Research Process, *The Qualitative Report* 13 (4) 695-705

Pellicano, E., Dinsmore, A., & Charman, T. (2013) *A future made together: Shaping autism research in the UK*. London: Institute of Education.

- Penn, H.E., Prichard, E.A., & Perry, A. (2007). The reliability and validity of a pilot version of the York Measure of Quality of Intensive Behavioral Intervention. *Journal on Developmental Disabilities, 13* (3), 149-166.
- Perry, A., Cummings, A., Dunn Geier, J., Freeman, N. L., Hughes, S., Managhan, T., et al. (2011). Predictors of outcome for children receiving intensive behavioral intervention in a large, community-based program. *Research in Autism Spectrum Disorders, 5*, 592–603.
- Perry, A. Cummings, A., Dunn Geier, J., Freeman, N., Hughes, S., LaRose, L., Managhan, T., Reitzel, J., & Williams, J. (2008). Effectiveness of Intensive Behavioral Intervention in a large, community-based program. *Research in Autism Spectrum Disorders, 2* ,621-642.
- Perry, A., Flanagan, H. E., & Prichard, A. (2008). The York Measure of Quality of IBI (YMQUI). *Unpublished Manual*, York University, Toronto, ON.
- Perry, A., & Freeman, N. L. (1996, March). Psychometric properties of the Childhood Autism Rating Scale (CARS). Poster presentation at the *Ontario Association on Developmental Disabilities Research Day*, Toronto, ON.
- Peters-Scheffer, N., Didden, R., Korzilius, H., Sturmey P. (2011) A meta-analytic study on the effectiveness of comprehensive ABA-based early intervention programs for children with autism spectrum disorders. *Research in Autism Spectrum Disorders 5* (1) 60-69.
- Positive Behavioural Support (PBS) Coalition UK. (2015) Positive Behavioural Support (PBS): A Competence Framework. Retrieved June 2017 from <http://pbsacademy.org.uk/pbs-competence-framework>

Professional Standards for qualified teacher (QTS) status retrieved from

<http://www.tda.gov.uk/training-provider/itt/qts-standards-itt-requirements.aspx>

Professional Standards for Higher level teaching assistant (HLTA) status, retrieved from

<http://www.tda.gov.uk/support-staff/developing-progressing/hlta/professional-standards.aspx>

Rausch, E., Sherman, H., & Washbush, J., B. (2002) Defining and assessing competences for competency-based, outcome-focused management development. *Journal of Management Development*. 21 (3), 184 -200.

Rees, J., Miller, R., & Buckingham, H. (2014) Public sector commissioning of local mental health services from the third sector. *Third Sector Research Centre Working Paper 122*, retrieved 18 April 2017 from

<http://www.birmingham.ac.uk/generic/tsrc/documents/tsrc/working-papers/working-paper-122.pdf>

Remington, B., Hastings, R. P., Kovshoff, H., degli Espinosa, F., Jahr, W., Brown, T., et al. (2007). A field effectiveness study of early intensive behavioral intervention: Outcomes for children with autism and their parents after two years. *American Journal of Mental Retardation*, 112, 418–438.

Research Autism. (n.d.) Alphabetic List of Interventions, Treatments and Therapies.

Retrieved from <http://researchautism.net/autism-interventions/alphabetic-list-interventions>

Rosenheck, R. A. (2001). Organizational process: A missing link between research and practice. *Psychiatric Services*, 52, 1607-1612.

- Ross, D. E., Singer-Dudek, J. & Greer, R. D. (2005). The teacher performance rate accuracy scale (TPRA): Training as evaluation. *Education and Training in Developmental Disabilities, 40* (4), 411-423.
- Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B., & Titchen, A. (2004) An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing, 13*, 913-924.
- Sands G, Chadborn N, Craig C, Gladman, J. (2016) Qualitative study investigating the commissioning process for older people's services provided by third sector organisations: SOPRANO study protocol. *BMJ Open*. doi:10.1136/bmjopen-2015010724
- Salomone, E., Beranová, S., Bonnet-Brilhault, F., Briciet Lauritsen, M., Budisteanu, M., Buitelaar, J., . . . & Charman, T. (2016). Use of early intervention for young children with autism spectrum disorder across Europe. *Autism, 20* (2), 233 –249.
- Schippmann, J.S., Ash, R.A., Battista, M., Carr, L., Eyde, L., Hesketh, B., Kehoe, J., Pearlman, K., Prien, E.P., Sanchez, J.I. (2000) The practice of competency modelling. *Personnel Psychology 53*, 703 – 740.
- Scottish Intercollegiate Guidelines Network (SIGN). *Assessment, diagnosis and interventions for autism spectrum disorders*. Edinburgh: SIGN; 2016. (SIGN publication no. 145). [June 2016]. Available from URL: <http://www.sign.ac.uk>
- Selinske, J.E., Greer, R.D., & Lodhi, S. (1991). A functional analysis of the comprehensive application of behavior analysis to schooling. *Journal of Applied Behavior Analysis, 24*, 107-117.
- Sen Policy Research Forum (2016) Policy Paper: *An early review of the new SEN / disability policy and legislation: where are we now?* retrieved 18 April 2017 from

<http://blogs.exeter.ac.uk/sen-policyforum/files/2016/11/Early-review-final-paper-Nov-16.pdf>

- Sheinkopf, S., & Siegel, B. (1998). Home-based behavioral treatment for young autistic children. *Journal of Autism and Developmental Disorders*, 28 (1), 15-23.
- Shook, G. L., & Favell, J. E. (1996). Identifying qualified professionals in behavior analysis. In Maurice, C., Green, G., & Luce, S. C. (Ed.), *Behavioral Intervention for Young Children with Autism: A Manual for Parents and Professionals* (pp. 221-229). Austin: Pro-Ed.
- Shook, G.L., & Favell, J.E., (2008) The Behavior Analyst Certification Board and the Profession of Behavior Analysis, *Behav Anal Pract.* 1(1): **44–48**.
- Shook, G. L., Johnston, J. M., & Mellichamp, F.(2004). Determining essential content for applied behavior analyst practitioners. *The Behavior Analyst*, 27(1), 67-94.
- The Speech, Language and Communication Competence Framework retrieved from, <http://www.communicationhelppoint.org.uk/About%20the%20SLCF.aspx>
- Smith, T. (2001). Discrete trial training in the treatment of autism. *Focus on Autism and other Developmental Disabilities*, 16, 86-92.
- Smith, T. (2013). What Is Evidence-Based Behavior Analysis? *The Behavior Analyst* 36, 7–33
- Smith, T., Parker, T., Taubman, M., Lovaas, I.O. (1992). Transfer of staff training from Workshop to group homes: A failure to generalize across settings. *Research in Developmental Disabilities. Special Issue: Community-based treatment programs: Some Problems and Promises*, 13 (1), 57-71.

- Speight, S., Callanan, M., Griggs, J., & Cartagena Farias, J. (2016), *Rochdale Research into Practice: Evaluation report and executive summary*. London: EEF
- Thornicroft, G., Lempp, H., Tansella, M. (2011) The place of implementation science in the translational medicine continuum. *Psychol Med* 41 (10), 2015-2021. doi: 10.1017/S0033291711000109
- Totsika, V., Hastings, R. P., Emerson, E., Lancaster, G. A., & Berridge, D. M. (2011). A population-based investigation of behavioural and emotional problems and maternal mental health: Associations with autism and intellectual disability. *Journal of Child Psychology and Psychiatry*, 52, 91-99.
- TreeHouse (2005) October Club ABA Training and Accreditation Project: Report on Consultation and discussion of findings, (available on ABA Stakeholder group: <http://groups.yahoo.com/group/ABAstakeholdersUK/>)
- TreeHouse (2007) Response to discussion Group Feedback ABA Stakeholder Day Monday 21 May 2007 (available on ABA Stakeholder group: <http://groups.yahoo.com/group/ABAstakeholdersUK/>)
- Tyler, E. J., Hughes, J. C., Beverley, M., Hastings, R.P. (2015). Improving early reading skills for beginning readers using an online programme as supplementary instruction. *European Journal of Psychology of Education*, 30 (3), 281-294
- Tzanakaki, P., Grindle, C. F., Saville, M., Hastings, R. P., Hughes, J. C., & Huxley, K. (2014). An individualized curriculum to teach numeracy skills to children with Autism: Program description and pilot data. *Support for Learning*, 29, 319-338.
- Tzanakaki, P., Grindle, C., Hastings, R. P., Hughes, J. C., Kovshoff, H., & Remington, B. (2012). How and why do parents choose early intensive behavioural intervention for

their young child with autism. *Education and Training in Autism and Developmental Disabilities*, 47, 58–71.

UK Government: Children and Families Act 2014.

<http://www.legislation.gov.uk/ukpga/2014/6/contents/enacted>

UK Government, The Commissioning Academy (2016) retrieved 27 May 2017 from

[www.gov.uk/guidance/the-commissioning-academy-information](http://www.gov.uk/guidance/the-commissioning-academy-information)

UK ABA Autism Education Competence Framework (2011) Version 1.0 Retrieved August 2014 from

[http://www.ambitiousaboutautism.org.uk/page/what\\_we\\_do/research/aba\\_competencies.cfm](http://www.ambitiousaboutautism.org.uk/page/what_we_do/research/aba_competencies.cfm)

US Department of Education (1990) Individuals with Disabilities Education Act (IDEA)

retrieved 27 May 2017 from <http://idea.ed.gov/>

Warren, Z., McPheeters, M. L., Sathe, N., Foss-Feif, J. H., Glasser, A., & Veenstra-

Vanderweele, J. (2011). A systematic review of early intensive intervention for autism spectrum disorders. *Pediatrics*, 127, 1303–1311.

Weinkauff, S. M., Zeug, N. M., Anderson, C. T., & Ala'i-Rosales, S. (2011). Evaluating the effectiveness of a comprehensive staff training package for behavioral interventions for children with autism. *Research in Autism Spectrum Disorders*, 5 (2), 864-871.

Whiteford, S., Blacklock, K., & Perry, A. (2012). Reliability of the York Measure of Quality of Intensive Behavioural Intervention (YMQI). *Journal on Developmental Disabilities*, 18 (3), 63-67.

Wightman, J., Boris, A., Thomson, K., Martin, G.L., Fazzio, D., Yu, C.T. (2012) Evaluation of a Self-Instructional Package for Teaching Tutors to Conduct Discrete-Trials Teaching with Children with Autism. *Journal on Developmental Disabilities*, 18 (3), 33-44.



- Wye, L., Brangan, E., Cameron, A. M., Gabbay, J., Klein, J. H., & Pope, C. J. (2015). Evidence-based policy making and the 'art' of commissioning - how English healthcare commissioners access and use information and academic research in 'real life' decision-making: an empirical qualitative study. *BMC Health Services Research*, *15*, 430. DOI: 10.1186/s12913-015- 1091-x

# APPENDICES

## Appendix A: Briefing paper for Advisory Group: ABA Competencies Project

12 October 2009

Behaviour Analysis: Obtaining professional recognition in the UK

Options within the UK regulatory framework

Briefing paper for Advisory Group: ABA Competencies Project

12 October 2009

### ***Background: Why a competency framework? (A reminder!)***

In December 2004, a workshop organised by PACE, Peach, and TreeHouse was held “*to consult with professionals in the field of autism and to gather ideas about an accreditation and career path for autism ABA practitioners*”. A series of stakeholder conferences/steering group discussions followed over the next two and a half years. There was clear agreement over a set of overlapping and inter-related issues: credibility and recognition of ABA and of its practitioners; recruitment, retention of tutors and pay; establishing ABA as a profession; community network support. These are still issues today.

There was not, however, clear agreement about how to go about achieving this. What was agreed, was the need to prioritise, and that ABA practice in the field of *autism education* would be an immediate focus. At the stakeholder conference in 2007, the development of an ABA Competency Framework was proposed, as well as the development of a website, the purpose of which was to raise public awareness of behaviour analysis in education<sup>10</sup>.

The ABA Competencies project started in February 2009. The project objectives and anticipated outcomes<sup>11</sup> should go some way to addressing many of the common and consistent issues that were discussed over the period of consultation from 2004 – 2007. The framework itself however will not, and cannot, specifically address the issue of professional recognition; although, as detailed below, it should put in place some of the infrastructure necessary to achieve that recognition.

### ***Professional recognition: what constitutes a profession?***

A profession arises when any trade or occupation transforms itself through “*the development of formal qualifications based upon education and examinations, the*

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<sup>10</sup> Proposals for discussion at ABA Stakeholder Day Monday 21 May 2007 (available on ABA Stakeholder group: <http://groups.yahoo.com/group/ABAstakeholdersUK/>)

<sup>11</sup> Advisory Group ABA Competencies project Terms of Reference April 09

*emergence of regulatory bodies with powers to admit and discipline members, and some degree of monopoly rights.”<sup>12</sup>*

By this definition, Behaviour Analysis is an acknowledged profession in the US.

In the UK, some elements of acquiring professional status already exist, based largely on qualifications and codes of practice developed in the US. In the original discussions surrounding the competency framework it was acknowledged that whilst the vision was “*to set up a framework which is ‘cradle to grave’ in terms of ABA career*”<sup>13</sup>, it would not attempt to set up a UK version of the Behaviour Analyst Certification Board (BACB) and the associated BCBA or BCaBA credentials. Rather, compatibility with BACB standards would be an important principle. This makes sense not only from a “why re-invent the wheel” point of view, but also because the BCBA & BCaBA credentials are internationally recognised. Indeed one of the objectives of the Competencies Project is “*to ensure the validity of UK ABA qualifications in relation to existing international qualifications and guidelines*”.

### ***Professional Recognition: What are the issues for Behaviour Analysts in the UK?***

- Recognition of the existing BACB credentials within the UK regulatory framework
- The development of formal qualifications from entry level (ABA tutor) through to the existing post-graduate BCBA credential which maps on to the National Qualifications Framework
- Accreditation of existing training offered by provider organisations
- The establishment of a regulatory body which represents all levels within the profession

The Competencies Project aims to address the second and third of these issues – specifically within the field of autism education. It cannot address the first and last. However we can work with other groups within the Behaviour Analysis community to address these points within the UK.

### ***Professional recognition: Recognition of the existing BACB credentials within the UK regulatory framework***

#### How big is the issue?

In 2000 there were no BACB certificants in Europe. Figure 1<sup>14</sup> shows the growth in BACB certificants in Europe from 2001. This has since grown to 147 certificants in Europe. Increasingly, universities, organisations and even local authorities employing

<sup>12</sup> Alan Bullock & Stephen Trombley, *The New Fontana Dictionary of Modern Thought*, London: Harper-Collins, 1999, p.689.

<sup>13</sup> Response to Discussion Group Feedback, ABA Stakeholder Day Monday 21 May 2007 (available on ABA Stakeholder group: <http://groups.yahoo.com/group/ABAstakeholdersUK/>)

<sup>14</sup> Hughes, J.C., & Shook, G.L.(2007). Training and certification of behaviour analysts in Europe: Past, present, and future challenges. *European Journal of Behaviour Analysis* 8 (2)

behaviour analysts are demanding BACB certification as part of their essential job criteria.

Today, in the UK, there are currently 65 BCBA/BCaBA certificants<sup>15</sup> and the demand for certification is growing. There are currently 5 institutions in the UK offering BACB accredited courses:

- Bangor University
- Swansea University (will not be offering the course in 2009/10)
- Cardiff University
- University of Kent
- University of Ulster at Coleraine.

A number of UK organisations that provide ABA services have also started to offer training and funding for employees to attend BACB courses and are also providing funding for supervision (e.g., The Hesley Group, Highfield Centre, Treehouse, Peach).

At Bangor and Swansea Universities alone there are currently 35 full-time and 42 part-time students enrolled on the Masters in Behaviour Analysis programmes and 172 recent graduates. Many of these are currently engaged in completing the supervision eligibility component of BACB certification, and plan to sit the examination within the next two years.

It is estimated that by 2010 there could be over 300 professionals seeking certification in the UK with at least 100 enrolled in accredited courses.

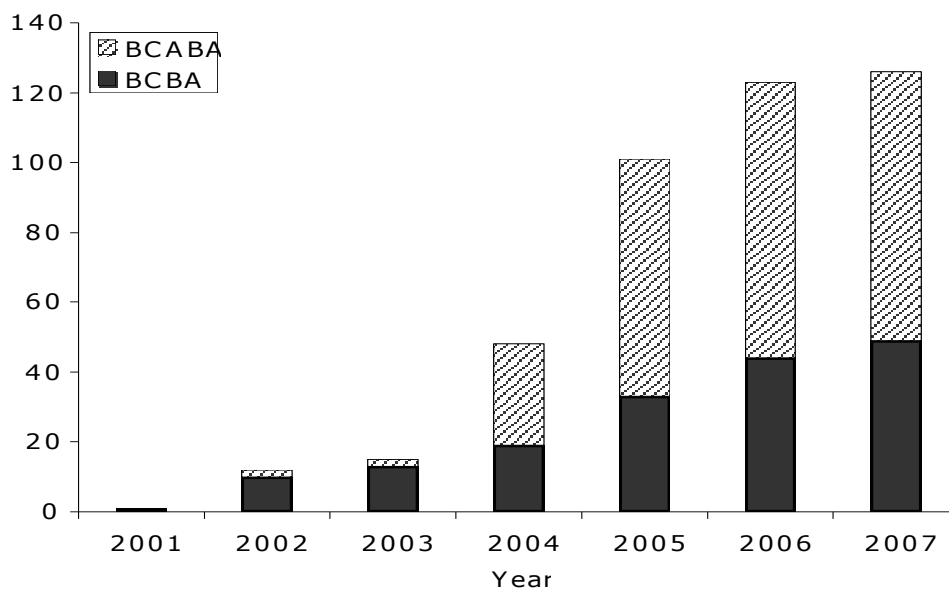


Figure 1: The cumulative number of European certificants by year.

### What steps have been taken so far?

In the absence of a professional body in the UK<sup>16</sup>, Richard Hastings, Carl Hughes and Louise Denne met with the British Association for Behavioural and Cognitive

<sup>15</sup> In March this year the number was 71, a reflection of some individuals failing to re-certify.

<sup>16</sup> The Experimental Analysis of Behaviour Group (EABG) is the only UK based group representing Behaviour Analysts but it is not a regulating body with subscribing members. The European Association of Behaviour Analysts (EABA) has UK members but its focus is Europe wide.

Psychotherapies (BABCP) in March 2009, to explore the possibility of the BABCP providing recognition of Behaviour Analysis in the UK, using the BACB accreditation and certification standards. This was a follow-up from an informal discussion held the previous summer. The BABCP was approached because one of its strategic objectives is to develop its facility to accommodate different approaches under the umbrella of BABCP, as has already occurred with the Association of Rational Emotive Behaviour Therapists (AREBT).

An initial comparison of the eligibility criteria for BABCP and BACB accreditation/certification suggests that there is considerable overlap. One key area of difference is that BABCP members need to have core professional training in addition to the accredited training covered by the BABCP. It was agreed that a working party be established to review the next steps needed for the current BACB accreditation (of courses) and certification (of practitioners) processes to meet BABCP minimum training and experience standards.

These discussions were held within the context of proposed changes the UK regulatory system for healthcare outlined in a government White Paper on the future of regulation, 'Trust, Assurance and Safety – The Regulation of Health Professionals in the 21<sup>st</sup> Century', published in February 2007. The aim, eventually, is for all Allied Health Professionals to come under Health Professional Council (HPC) regulation<sup>17</sup>. Professional bodies such as the British Association of Behavioural and Cognitive Psychotherapists (BABCP) and the British Psychological Society (BPS) will continue to exist but will not exercise any regulatory authority.

In July this year psychotherapy was approved under the new proposals. As a result everyone currently on the BACP register will transfer to the HPC register by 2011. In a conversation with Chris Cullen, (former BABCP president) Richard Hastings was advised that it may be possible for the ABA community to reach agreement with the BABCP for "umbrella registration" before this changeover date, but only for those individuals who have a recognised core professional training. Thus, individuals with a suitable professional background who work as behaviour analysts might be able to be registered with HPC through this route. Chris Cullen's other suggestion was that the ABA community talk directly to the HPC.

Independently of these discussions Neil Martin approached the HPC on behalf of EABA and was advised by Michael Guthrie, Director of Policy and Standards, HPC that the process of regulating the groups listed in the White Paper was such that the government is unlikely to be considering additional groups within the near future. Options for further regulation have been outlined in a recent publication: Extending Professional Regulation, produced by the Extending Professional Regulation Working Group<sup>18</sup>.

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<sup>17</sup> The HPC currently regulates 14 professions: Arts therapists, Biomedical scientists, Chiropodists/podiatrists, Clinical scientists, Dietitians, Occupational therapists, Operating department practitioners, Orthoptists, Paramedics, Physiotherapists, Practitioner psychologists, Prosthetists/orthotists, Radiographers, Speech and language therapists.

The Health Professions Order (2001) allows the HPC to regulate other professions in the future. New professions currently under consultation are: Hearing aid dispensers; Psychotherapists and Counsellors; Dance movement psychotherapists.

<sup>18</sup> <http://www.dh.gov.uk/en/Managingyourorganisation/Humanresourcesandtraining/Modernisingprofessionalregulation/ProfessionalRegulationandPatientSafetyProgramme/ExtendingProfessionalRegulation/index.htm>

### Recognition vs. regulation

One of the reasons for the publication of the above report was a concern that statutory regulation is seen by some as a means of achieving the same level of “*clinical legitimacy or perceived evidence base*” as groups currently regulated. It notes that whilst regulation is seen to be a defining characteristic of a “profession”, it does not need to be statutory.

Another reason for the report was concern for the cost of regulation. Approximately 1.3 million healthcare workers are currently subject to statutory regulation. If all additional groups were included that would be another 1 million, nearly 4% of the total working population of the UK. Future decisions regarding regulation will assess the risks that an unregulated profession poses to patient care vs. the costs of that regulation.

The report recommends that regulation should be a priority for any groups:

- Practising without the supervision or support of peers, managers and other regulated staff;
- Practising with vulnerable or isolated individuals;
- Highly mobile, locum or short tenure;
- Not guided by a strong professional (or employer) code of conduct; and,
- Carrying out roles where the training and educational requirements are short and there is no extended period through which the ethos and values that underpin safe practice can be imbued.

It should be noted that psychology and psychotherapy have already been accepted as disciplines that need to be regulated. The case for regulation of Behavioural Analysts should meet the same criteria.

The recommendations set out in the report however signal a significant change to the way in which decisions about extending regulation should be made. The report recommends, in addition to the alternative models discussed below, that Department of Health in England and the Devolved Administrations should consider:

- *The need for a ‘gatekeeper’ role to lead discussions about an **evidence-based** approach to extending professional and occupational regulation;*
- *Commissioning the ‘gatekeeper’ to **shortlist** currently unregulated groups to assess the need for formal regulation; and,*
- *Establishing an **independent panel** to assess the case for regulation and make recommendations to Ministers.*

### A note on Health vs. Education

All of the exploratory work that has been done to date in terms of professional recognition has been from a Health perspective. In Education, the Office for Standards in Education (OFSTED) inspects and regulates education providers but this tends to focus on service provision within education rather than professional groups. The Training and Development Agency for Schools (TDA) is responsible for the training and professional development of teachers and other school staff. The structure of its framework for professional standards for teachers is of interest to the Competencies Project and has been included in the review of existing competencies. However, its

scope is limited to professionals within education settings and therefore potential recognition within this structure would be limited to those practising within schools. The closest parallels to Behaviour Analysts are the Allied Health Professionals such as Speech and Language Therapists, Occupational Therapists and Educational Psychologists within education, and Practitioner psychologists and Psychotherapists within other fields. These all come under HPC regulation.

### What are the options?

1. HPC New Professions route
2. HPC piggy back on existing profession: Practitioner Psychologist/Psychotherapist
3. Voluntary self-regulation
4. Employer-led regulation
5. Statutory licensing regime

Two other options are listed in the working report on Extending Professional Regulation but are not included in the review below: “Light touch regulation” is recommended for very small, non-invasive, low risk and newly emerging forms of care; “Workforce Passport” is for all, and only, NHS staff.

### HPC New Professions route

New Professions applications for HPC regulation are assessed in two parts.

For Part A professions need to demonstrate that practitioners are involved in at least one of the following activities:

- invasive procedures
- clinical intervention with the potential for harm
- exercise of judgement by unsupervised professionals which can substantially impact a patient’s health or welfare

Additionally occupations must not be regulated by any other means.

For Part B, Professions need to show that they:

- Cover a discrete area of activity displaying some homogeneity
- Apply a defined body of knowledge
- Practise based on evidence of efficacy
- Have at least one established professional body which accounts for a significant proportion of that occupational group
- Operate a voluntary register
- Have defined routes of entry to the profession
- Have independently assessed entry qualifications
- Have standards in relation to conduct, performance and ethics
- Have Fitness to Practise procedures to enforce those standards
- Be committed to continuous professional development (CPD)

Behaviour Analysts should be able to satisfy all of Part A and most of Part B subject to the more detailed requirements of each of the above points. The two that are not



immediately straight forward are the “established professional body” and the “voluntary register”.

Any established professional body has to submit evidence that they account for at least 25% of the occupation’s practitioners. Furthermore they must provide evidence of a constitution or rules, minuted meetings, election rules and results and standing orders for the body.

There is an additional requirement to demonstrate that practitioners who do not belong to the professional body are also supportive of the application, as indeed are any other representative bodies. In this respect it is possible that endorsements from the BACB and EABA may be accepted.

The voluntary register likewise has to account for at least 25% of practitioners. The guidelines surrounding the register are less precise and it is not clear if the BACB register would be acceptable as it is not based in the UK. What the guidelines do say however is that any evidence in the application of an aspirant group’s of plans to inform an applicant occupation’s practitioners of the consequences of regulation by the Council will be considered “very favourably”.

#### HPC piggy back on existing profession: Practitioner Psychologist

The HPC took over regulation of Practitioner psychologists in July 2009. In so doing it took over the registration previously managed by the British Psychology Society (BPS). Protected titles include: Clinical psychologist; Counselling psychologist; Educational psychologist; Forensic psychologist; Health psychologist; Occupational psychologist; Practitioner psychologist; Registered psychologist; Sport and exercise psychologist

The profession of psychology is divided into seven areas or ‘domains’ of practice. The domains that will be regulated are: Clinical psychologists; Counselling psychologists; Educational psychologists; Forensic psychologists; Health psychologists; Occupational psychologists; Sport and exercise psychologists.

That the distinction between protected title and domain is made, suggests that although it may be possible for a “Behavioural Psychologist” to apply for registration using either of the Practitioner or Registered titles, the domain of Behavioural Psychology will not be recognised. It is not clear whether or not the HPC is open to the inclusion of additional protected titles within the Practitioner Psychologist umbrella.

#### HPC piggy back on existing profession: Psychotherapist

The regulation of psychotherapists is currently under consultation. At the moment two protected titles are proposed: psychotherapist and counsellor. It is unclear whether or not the option exists to apply for additional titles. Although the expectation is that those on the BABCP register will transfer to HPC regulation by 2011, the threshold level of qualification for entry to the HPC register as a psychotherapist is likely to be masters level. Therefore it may be possible for behaviour analysts with a masters qualification in ABA to meet HPC criteria even if full BABCP criteria (the need for a core profession) are not met. Thus behaviour analysts may be able to register with the HPC as a psychotherapist but this of course does little to help recognise the distinct profession of behaviour analysis.

### Voluntary self-regulation

*“Voluntary professional self-regulation is a model through which professionals collaborate and agree a set of standards and practices and codes of conduct, independent of Government or any statutory framework, for the purpose of raising standards and protecting the public. The profession itself takes responsibility for registering its members, setting standards, maintaining a register of practitioners and removing members who are considered to have fallen short of those standards. For example, osteopathy and chiropody both established voluntary registers, as a prelude to statutory regulation. Practitioner psychologists have also established a voluntary register, in advance of their prospective regulation, subject to passing of legislation, in the summer of 2009.”*<sup>19</sup>

This route has already been adopted by many un-regulated professional and occupational groups within healthcare as a preparatory stage prior to statutory regulation. The Working Group has recommended that the Council for Healthcare Regulatory Excellence (CHRE) develop “a formal voluntary accreditation regime to supplement voluntary registers within the menu of regulatory choices”.

### Employer-led regulation

The employer-led model is similar to voluntary self-regulation except that the process is managed by employers rather than a representative professional organisation. This model has been piloted by 3 NHS boards in Scotland. Key elements include:

- a set of induction standards that focus on public protection
- a Code of Conduct for Healthcare Support Workers
- a Code of Practice for Employers
- a centrally held list of names of those who meet the standards required

These can tie into UK wide frameworks such as the Knowledge and Skills Framework and the Skills for Health products including the National Workforce competencies and National Occupation Standards.<sup>20</sup>

### Statutory licensing regime

This option is seen as a potentially more robust alternative to the relatively weak protection offered by some forms of voluntary self-regulation. A licensing regime would focus on 3 core aims:

- To ensure appropriate standards based training/qualifications for the role
- To help secure adherence to a code of conduct
- To ensure those whose conduct does not meet the required standard are barred from carrying out these roles in the future

Skills for Health and other stakeholders could agree the qualifications, training and educational standards that the health care worker needs in order to secure a licence to

<sup>19</sup> Working Group report on Extending Professional Regulation

<sup>20</sup> These standards have been reviewed as part of the review of competencies in health care and are included in Briefing paper #2 for the Advisory Group meeting ABA competencies project October 12 2009.

do their jobs safely and effectively. At a basic level this could be a single, uniform standard for the group as a whole; or it could involve a range of licences reflecting different levels of risk and different occupational roles like the distinction between BCBA and BCaBA. One of the potential advantages of a system like this is that stakeholders could be drawn from both the health and education communities.

***Professional recognition: What should the next steps be?***

Table 1 (below) summarises some of the advantages and disadvantages of the above options.

In deciding the best route forward the following needs to be taken into consideration:

- Whilst the Competencies Project has as its focus ABA practise in the field of autism, and whilst this arguably represents the largest group of practitioners, any steps taken towards achieving professional recognition should be able to accommodate the entire Behaviour Analysis community.
- In keeping with the above, the decision making process must include the organisations currently representing the Behaviour Analysis community: EABA & EABG with the endorsement of the BACB
- Any model should be compatible with and able to incorporate BACB guidelines and credentials.
- Any model should additionally provide a regulatory system for practitioners who do not wish to take their academic training to graduate and post-graduate level.

Recommended steps forward

The Advisory Group is asked to endorse the following recommendations:

- That the Behaviour Analysis community, and in particular the EABA and EABG co-ordinate efforts to ensure the recognition of Behaviour Analysis as a profession and the recognition of BACB credentials
- That a working party be set up to achieve the above and that Carl Hughes be asked to represent the interests of the UK ABA autism community in such a group – Carl also chairs the EABG
- That the scope of the ABA competencies project be defined as the set of competencies required to deliver best practice within autism education using the principles of Behaviour Analysis, and, critically, that outline the knowledge and skills required from any practitioner especially those who are not at post-graduate level (although additional competencies required that are not included in BACB certification will be developed)
- That the ABA Competencies project works closely with the Behaviour Analysis community (and any working group as proposed above) to ensure that the competencies project is able to deliver on any requirements that come out of the chosen route for professional recognition

Table 1: Summary of options

	Advantages	Disadvantages
HPC New Professions route	<p>Most straightforward way of establishing Behaviour Analyst as protected title</p> <p>Potential to accommodate different levels and areas of practice</p> <p>HPC bears costs of infrastructure</p>	<p>Time – acceptance of new professions unlikely soon</p> <p>Need to investigate if BACB register is accepted</p> <p>EABG/EABA do not fully meet criteria of established professional body</p>
HPC piggy back on existing profession: Practitioner Psychologist	<p>Gov't has already committed to regulate psychologists</p> <p>Some of the protected titles do not require core professional training and masters entry level accepted (but not ok for BCaBA level)</p> <p>Opportunity exists under protected title of "Registered Psychologist"</p>	<p>Unlikely to accept new protected title – Behaviour Analyst therefore not recognised</p> <p>Will "psychologist" title be acceptable to all groups within Behaviour Analysis?</p> <p>Post-graduate recognition only and only for those with a psychology background</p>
HPC piggy back on existing profession: Psychotherapist	<p>Gov't has already committed to regulate psychotherapists</p> <p>Opportunity to add to protected titles?</p> <p>Masters entry level has been proposed (but this is not suitable for BCaBA level)</p>	<p>Not clear if the option exists to propose additional protected title – Psychotherapist would not be an appropriate title for all behaviour analysts</p> <p>Not clear if the need for "core profession" will be carried over from BABCP.</p>
Voluntary self-regulation	<p>Quickest way of establishing Behaviour Analyst as a profession albeit on an informal basis</p> <p>Potential to accommodate different levels and areas of practice</p> <p>First steps towards satisfying requirements for HPC regulation</p>	<p>Will not lead to statutory regulation/recognition</p> <p>Cost of set up of regulating body</p>
Employer-led regulation	<p>No need for establishment of professional body</p> <p>Is standards-led and codes of practice can be tailored to specific settings/service delivery</p>	<p>Will not lead to statutory regulation/recognition</p> <p>Too fragmented? No core employer such as the NHS</p>
Statutory licensing regime	<p>Will lead to statutory recognition and regulation Licensing can be optional</p> <p>Can involve both health and education as stakeholders</p> <p>Can include different types/levels of licence</p>	<p>Not clear about professional title</p> <p>Not sure about decision-making body – who confers licences?</p>

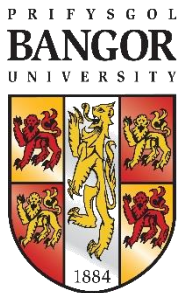
**Appendix B: UK ABA Autism Education Competence  
Framework Level 1 (2011)**

**UK ABA Autism Education  
Competence  
Framework**

**Version 1.1  
November 2011**

**LEVEL 1**

**ENGLAND**



*'Improving the quality of family life'*



The UK ABA (Applied Behaviour Analysis) Autism Education Competence Framework is for practitioners working with children and young people with autism. The project has been funded by Ambitious about Autism, the national charity for children and young people with autism, primarily through generous grant donations. A project management group, led by Ambitious about Autism and including Bangor University and a parent member, worked with the support of, and in collaboration with, key stakeholders from the ABA and autism communities across the UK. The development of this framework has been possible through the generous donation of the following organisations and an individual donor:

Allan and Nesta Ferguson Trust  
Evan Cornish Foundation  
Harold Hyam Wingate Foundation  
Porticus - UK  
The Stavros Niarchos Foundation

Parent (anon.)

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## What is Applied Behaviour Analysis?

Applied Behaviour Analysis (ABA) uses an understanding of why behaviour occurs to address a wide range of social issues, including helping individuals to learn. Like other applied sciences, ABA can be applied to a range of populations and settings (e.g., business and industry, education, gerontology, healthcare) and to a range of social concerns (e.g., anxieties, depression, phobia, addiction, behaviours associated with autism). What distinguishes ABA from other disciplines is not just that it focuses on behaviour and the context (environment) in which behaviour occurs, but that for behaviour analysts, behaviour and environment are broadly defined. Behaviour encompasses all of the activities people engage in (including actions, interactions, talking and thinking) and environment encompasses both the physical and social events, external and internal, that people experience. Behaviour analysts use principles of learning and laws of behaviour that have been scientifically demonstrated, and use clearly defined procedures to specify how to change behaviour. The effectiveness of any behaviour change intervention is continually monitored and evaluated. The primary focus of ABA is on behaviour that is important to individuals, in terms of enabling them to lead more fulfilling lives.

Practicing behaviour analysts work to achieve positive behaviour change for individuals, groups of people, and for organizations and society as a whole. Behaviour analysts might be involved in helping to make a positive difference to behaviour change in any context in healthcare, public health, social care, education, or business. Behaviour analysts work with people to help achieve behaviour change by using ABA-based intervention approaches.

## Our Values

In common with other helping professions, behaviour analysts always aim:

- to do no harm
- to ensure that people are safe and feel secure
- to promote the right of every individual to beneficial help and support irrespective of intellectual ability, age, culture, gender, sexuality, or other background
- to work in the best interests of individuals and their families and carers

In addition, the practice of behaviour analysis is characterised by the following commitments:

- ambition for the person, and optimism about what is possible for them
- an assumption of every person's ability to develop and learn
- a determination not to limit expectations by basing them on assumptions about a person's disabilities
- empowering the individual by establishing skills that enable the development and management of their own behaviour
- using feedback from individuals and their families and carers to amend interventions
- to build on, and facilitate, learning by using the individual's interests and preferences
- the development of strengths as a part of any intervention designed to minimise difficulties
- a recognition that learning is lifelong, and includes skills in all areas of life
- using evidence of what is and is not working for each individual to guide decision making
- adapting practice according to new and emerging evidence in the wider professional environment
- collaborative working with other professionals, family members, and carers to best support the individual

## What is the UK ABA Autism Education Competence Framework?

The UK ABA Autism Education Competence Framework is a detailed framework of the knowledge and demonstrable behaviours (i.e., things that can be demonstrated to another person) that are important for anyone in UK education settings working with children and young people with autism using ABA<sup>21</sup>.

Section 1 of the framework will provide a clear, professional development pathway for those wishing to pursue a career in ABA and is compatible with the internationally recognised Behaviour Analyst Certification Board (BACB®) credentialing. Taken as a whole, the framework is intended to provide a more general professional development pathway for anyone working with children with autism within the field of education, but will also, as a later development, map onto the UK Qualifications and Credit Framework."

As a result of the Framework it is envisaged that:

- More children and young people with autism will benefit from high-quality, evidence-based education delivered by competent professionals.
- Practitioners will benefit from professional development and occupational standards.
- Parents and organisations supporting the education of children and young people with autism will be able to employ practitioners with a greater degree of certainty about competence and quality.
- Education providers and the academic community will have a greater understanding of the nature and use of ABA in educational practice for children with autism.

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<sup>21</sup> For an understanding of how the framework was developed, and background to the project see Denne, L.D., Hastings, R., Hughes, J.C., Bovell, B., & Redford, L.(2011). Developing a Competence Framework for ABA and Autism: What Can we Learn From Others? *European Journal of Behaviour Analysis* 12 (1) 217 – 230.

## **Who is the Framework for?**

The UK ABA Autism Education Framework is relevant to anyone who works with, provides services for, or is a recipient of services for children or young people with autism using ABA.

The Framework is also useful for training providers who may wish to identify, and develop assessments of, competencies.

The Framework may be used to inform the development of a curriculum and qualifications for those who work with children and young people with autism.

## What does the Framework include?

The Framework is in two sections. Section 1 is the Science and Practice of ABA and Section 2 is Autism and Education: Understanding Context. The Framework model for Section 1 outlines four levels of professional development for Behaviour Analysts working in UK Education settings with children and young people with autism.

### Section 1: The Science and Practice of ABA

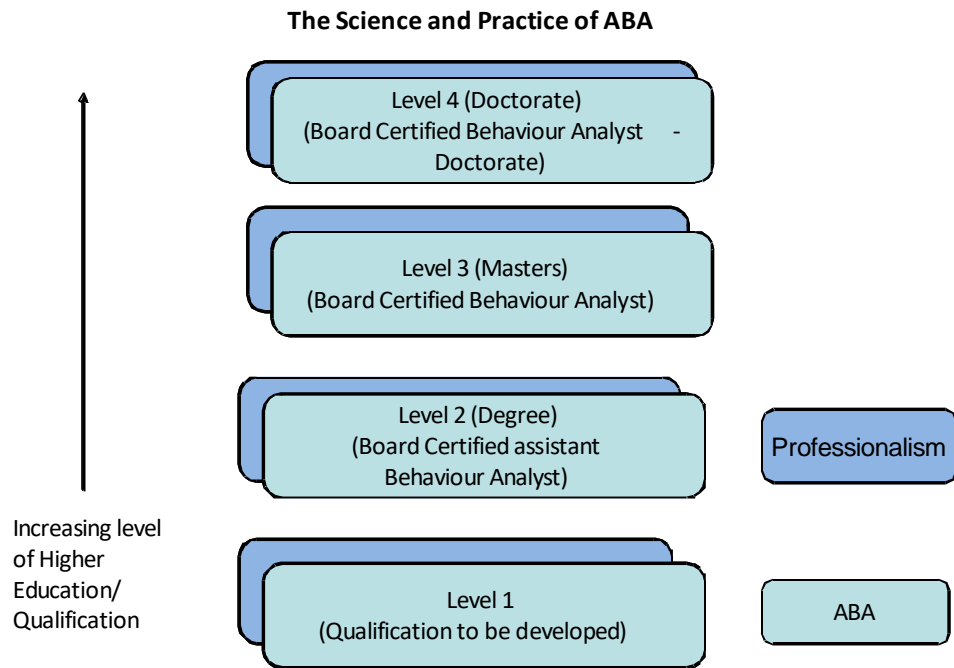
The first section is “The Science and Practice of ABA”. This is the foundation of all of the professional qualifications contained within the Framework. It includes two content strands in relation to the science and practice of ABA: ABA, and Professionalism.

The ABA content strands at levels 2, 3 and 4 already exist through the BACB® credentialing system (BCaBA, BCBA and BCBA-D credentials respectively). Access to BACB® credentialing is facilitated for practitioners in the UK via a number of BACB® approved course providers which offer the academic content as part of recognised UK University courses<sup>22</sup>.

The professionalism strands are drawn from existing ethical guidelines and standards (e.g. the BACB’s Guidelines for Responsible Conduct for Behavior Analysts) but have been specifically tailored for behaviour analytic practitioners working in the UK within the fields of autism and education.

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<sup>22</sup> See pg 91 for a list of all current BACB® approved courses in the UK; and refer to the Behaviour Analyst Certification Board website for a complete listing of the requirements at each level: <http://www.bacb.com>



A qualification at Level 1 does not currently exist, but it is anticipated that the competencies detailed in the framework will be used to inform the development of a qualification that maps onto the UK Qualifications and Credit Framework.

## Section 2: Autism and Education – Understanding context

The second section is “Autism and Education: Understanding Context”. This contains two content strands, Autism, and Education. It reflects additional competencies that are population and setting specific and which all those working with children and young people with autism should be aware of. These sections also explicitly reflect the language used by those populations (people with autism) and in those settings (education settings) that a behaviour analyst is likely to come into contact with.

This approach of understanding context is consistent with the current Guidelines for Responsible Conduct for Behaviour Analysts<sup>23</sup> which state that:

<sup>23</sup> Behaviour Analyst Certification Board (2001) *Guidelines for Responsible Conduct for Behaviour Analyst*. Tallahassee, FL., Retrieved from <http://www.bacb.com/Downloadfiles/BACBguidelines/1007GuidelinesFpdf>

**“1.02**

*(a) Behavior analysts provide services, teach, and conduct research only within the boundaries of their competence, based on their education, training, supervised experience, or appropriate professional experience.*

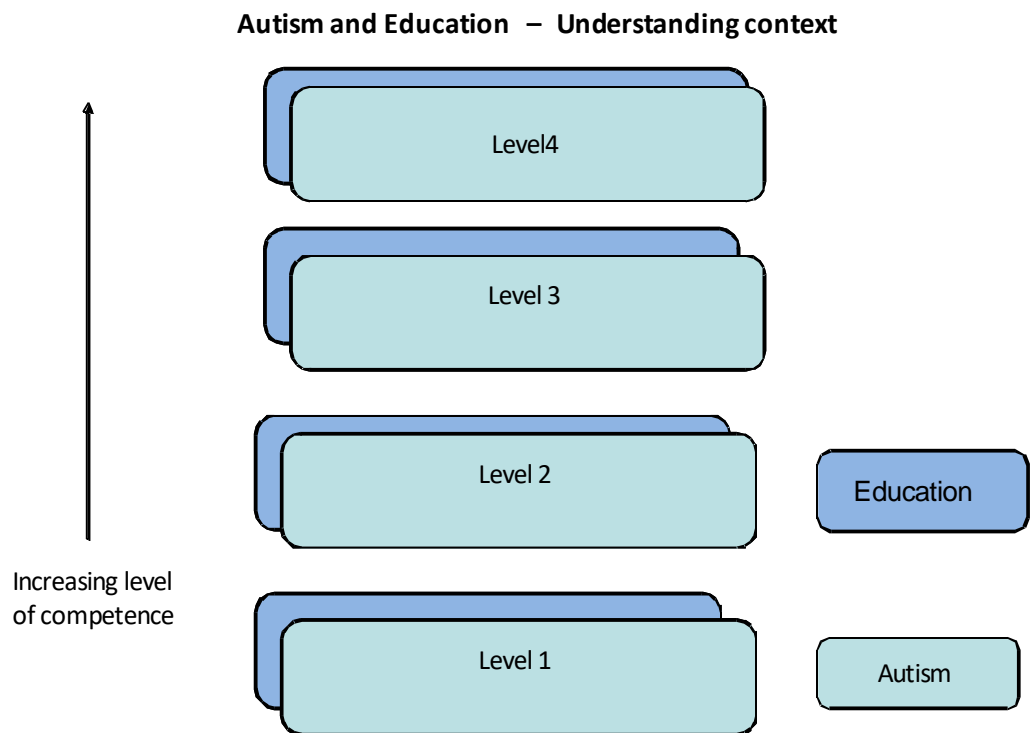
*(b) Behavior analysts provide services, teach, or conduct research in new areas or involving new techniques only after first undertaking appropriate study, training, supervision, and/or consultation from persons who are competent in those areas or techniques.”*

Under “Professional and Scientific Relationships,” the guidelines further state that:

**“1.05**

*(b) Behavior analysts provide behavioral diagnostic, therapeutic, teaching, research, supervisory, consultative, or other behavior analytic services only in the context of a defined, remunerated professional or scientific relationship or role.*

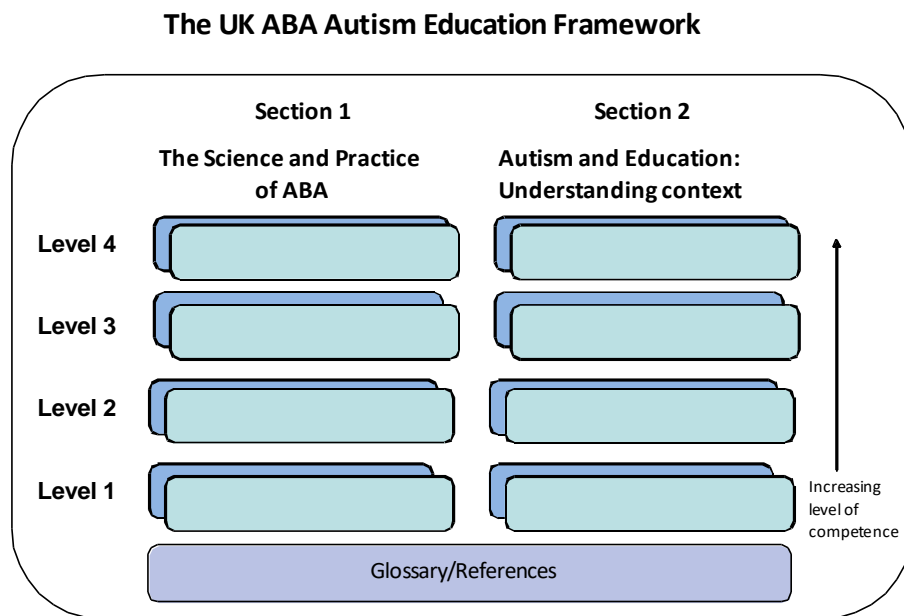
*(b) When behavior analysts provide assessment, evaluation, treatment, counseling, supervision, teaching, consultation, research, or other behavior analytic services to an individual, a group, or an organization, they use language that is fully understandable to the recipient of those services. They provide appropriate information prior to service delivery about the nature of such services and appropriate information later about results and conclusions.”*



There may be existing qualifications that would cover these contextual competencies or new ones can be developed. Competencies can be measured and assessed in many different ways and it will be up to employers to ascertain whether or not a practitioner has the requisite qualification and context based competencies in order to work to best practice standards. Equally the onus will be on all practitioners to be able to demonstrate that they have both ABA and context specific competencies or to seek to develop those competencies where missing.



## The UK ABA Autism Education Competence Framework



The UK ABA Autism Education Framework brings together both sections: The Science and Practice of ABA and Autism and Education: Understanding Context to define the knowledge and demonstrable behaviours (i.e., things that can be demonstrated to another person) that are important for anyone in UK education settings working with children and young people with autism using ABA.

There will also be a Foundation level of ABA competencies for those who may not wish to develop a career as a behaviour analyst in autism but may be interested in learning more about ABA, working to support the delivery of an ABA-based educational model, or working in another professional role in an ABA setting.

## UK ABA Autism Education Competence Framework: Level 1

Level 1 outlines the competencies across both sections required by those individuals working with children with autism on a daily basis in classrooms or at home.

### Section 1

The Science and Practice of ABA (ABA, and Professionalism) has been written by Behaviour Analysts. It is informed by the BACB Task List 3<sup>rd</sup> Edition, employers and supervisors of, and individuals working in roles typically called ABA tutor or ABA therapist. The Professionalism strand has also been reviewed by other professionals working in ABA settings and includes those competencies relating to ethics and professional conduct broadly. These are generic competencies which outline the contribution that the ABA profession brings to issues of social significance and can be applied to any settings and populations.

### Section 2

Autism and Education - Understanding Context has been written by individuals with autism, parents of children with autism, and other experts in the field of autism; and by teachers and allied health professionals primarily working in ABA education settings and in other education settings in the UK respectively.

None of the content within Section 2 has been written from a behaviour analytic point of view. This is deliberate. The intention is to set out the knowledge of autism and related competencies that people with autism and parents of children with autism would like *anyone* working with children with autism to know, as well as what they need to be able to do, so that they can provide safe, nurturing, and effective support to those individuals.

These competencies are therefore relevant to all professionals working with individuals with autism.

Similarly the Education strand focuses on the structure of the education framework and statutory requirements at a national level and includes those things that *anyone* working in an education or home based setting needs to know and do so that they satisfy those requirements. Because education in Wales, Scotland, and Northern Ireland is a

devolved function, separate versions of the Education strand have been developed for the four nations of the UK.

The expectation is that ABA professionals will apply their own knowledge of the science and practice of ABA to these more general population and setting statements, and interpret them in a way that is consistent with a behaviour analytic perspective and ensures a meaningful contribution to the quality and professionalism of their work.

### Layout of the competencies sections

Each of the content strands is divided into subject areas. The knowledge and demonstrable behaviours for each subject area are presented as two columns side by side. This structure does not necessarily imply a direct association between a knowledge competence and a demonstrable behaviour competence. Rather, the Knowledge and Demonstrable Behaviour for each subject should be interpreted as “this is what you need to know” and “this is what you need to do” within this subject area. Similarly, the presentational order of competencies in subject areas does not prescribe any priority or any suggested order for development of competencies or for training.

### Glossary

Given the scientific nature of ABA it is often presented using technical language. In this document, we have taken care to describe ABA concepts and terms in a way that we believe is correct but also more accessible to those who will use this Framework and who may not yet be familiar with the scientific terms. A Glossary is provided to explain those terms which are not covered by the ABA literature. For those who wish to find more detail of some of the scientific terms a reference list has been provided.

### Future revisions

Knowledge and evidence relating to ABA and autism, and the education context in the UK, will inevitably change over time. Therefore, the competencies within the Framework will be reviewed and, if appropriate, revised on a regular basis.

## How can the Level 1 competencies be used?

The UK ABA Autism Education Framework Level 1 competencies can be used to:

- provide the missing first step in a clear pathway for professional development for practicing behaviour analysts in the UK working with children and young people with autism
- provide a clear indication to Level 1 practitioners of the knowledge and practice they need to be able to demonstrate
- provide a framework against which to identify Level 1 practitioners' established competencies and to identify their development and supervision needs
- provide a framework to inform the learning outcomes of training programmes and the development of appropriate ABA Level 1 qualifications

Applied Behaviour Analysis

ABA.1 Definition, Characteristics and Scope of Applied Behaviour Analysis			
Knowledge		Demonstrable Behaviour	
K.1	You know that Applied Behaviour Analysis (ABA) uses an understanding of why behaviour occurs to address a wide range of social issues, including helping individuals to learn.	D.1	You give examples of the use of ABA with the <a href="#">learners</a> <sup>24</sup> you work with as well as applications from other populations and settings.
K.2	You know that ABA, like other applied sciences, has many applications. This means that it can be applied to a range of populations and settings (e.g., business and industry, education, gerontology, healthcare) and to a range of social concerns (e.g., anxieties, depression, phobia, addiction, behaviours associated with autism).		
K.3	You know that what distinguishes ABA from other disciplines with similar aims is not just that it focuses on behaviour and the context (environment) in which behaviour occurs, but that for behaviour analysts, behaviour and environment are broadly defined (see K.9 & K.17)		
K.4	You know that the primary focus of ABA is on behaviour that is important to individuals, in terms of enabling them to lead more fulfilling lives.	D.2	You describe behaviour only in terms of the characteristics that you observe.
K.5	You know that every <a href="#">programme</a> and <a href="#">intervention</a> within that programme is tailored to meet the needs of each learner, and changes over time using feedback from observed and measured changes in the behaviour of that learner.		
K.6	You know that the generation and use of evidence is integral to ABA and that this includes evidence of the basic principles of behaviour, evidence of the application of these principles in published intervention studies and, critically, that each intervention used with a learner is evaluated on an ongoing basis by gathering information about changes in behaviour.	D.3	You accurately and consistently follow the data collection procedures selected by your supervisor.

<sup>24</sup> Glossary items are shown in blue the first time they appear in the text.

K.7	You know that to ensure an intervention works effectively it must be used by everyone responsible for its delivery accurately and consistently across settings.	D.4	You accurately and consistently follow procedures selected by your supervisor.
K.8	You know that a number of interventions that are applied in a wide range of settings are based on ABA (e.g., <a href="#">Picture Exchange Communication System (PECS)</a> ; <a href="#">Pivotal Response Teaching (PRT)</a> ; <a href="#">Precision Teaching</a> ; <a href="#">Functional Communication Training</a> ; <a href="#">Self-Management</a> ; <a href="#">Modelling</a> ).		

ABA. 2: Principles, Processes and Concepts			
	Knowledge		Demonstrable Behaviour
	<u>Behaviour and Response</u>		
K.9	You know that behaviour is the activity of all living beings. Human behaviour is what people do, including actions, interactions, and movements.	D.5	You give examples of your own behaviour and the behaviours of the learners you work with.
K.10	You also know that language (what people think, say and remember) is behaviour.		
K.11	You know that many complex daily living skills can be broken down into a collection of more precisely defined behaviours (e.g., brushing one's teeth involves identifying and picking up the toothpaste, taking off the lid, identifying and picking up your own toothbrush, squeezing toothpaste on the toothbrush etc.).	D.6	You give examples of the behaviours that together make up common daily living skills.
K.12	You know that a response is a single instance of behaviour.	D.7	You give examples of responses from your own behaviour and the behaviours of the learners you work with.
K.13	You know that responses can share the same form but have different functions (e.g., waving one's hand can be used to say goodbye or to attract attention); and have the same function but different forms (e.g., waving your hand or shouting can both be used to attract attention).	D.8	You distinguish between the form and function of behaviour.
K.14	You know that behaviour is described and defined using observable and measureable dimensions.	D.9	You describe your own behaviour and the behaviour of those with whom you work in precise, observable, and measurable terms.
K.15	You know that the observable dimension of behaviour is its physical form – (physical form is also called topography).	D.10	You describe a response (a single instance of behaviour) in precise, observable, and measurable terms.

<p>K.16</p>	<p>You know that the measurable dimensions of behaviour include:</p> <ul style="list-style-type: none"> <li>• the number of times it occurs ( i.e. it can be counted)</li> <li>• when it occurs (i.e. the time can be specified)</li> <li>• the length of time it occurs for (duration)</li> <li>• its intensity (the force with which it occurs)</li> <li>• its location (where it occurs)</li> </ul> <p><u>Environment and Stimulus</u></p>		
<p>K.17</p>	<p>You know that the Environment is the collection of all stimuli that can have an influence on behaviour and that Environment includes internal states such as pain as well, as external stimuli such as the doorbell ringing.</p>		
<p>K.18</p>	<p>You know that a stimulus is any change in the environment that can affect behaviour.</p> <p><u>Relationship between behaviour and environment</u></p>		
<p>K.19</p>	<p>You know that most behaviour in applied settings has been learned: it occurs because of the event/s that have set the occasion for the behaviour to occur (antecedent/s), and because of the events that have typically followed in the past (consequence) that make it more or less likely for the behaviour to happen again:</p> <ul style="list-style-type: none"> <li>• the antecedent (e.g., <i>antecedent</i>: the phone rings; <i>response</i>: you pick it up)</li> <li>• and the consequence (e.g., <i>response</i>: you pick it up; <i>consequence</i>: you speak to someone).</li> </ul>	<p>D.11</p> <p>D.12</p> <p>D.13</p>	<p>You give examples from your own behaviour and examples from the learners you work with of the relationship between an antecedent and a response.</p> <p>You give examples from your own behaviour and examples from the learners you work with of the relationship between a response and a consequence</p> <p>You seek to identify the reason why a particular behaviour occurs (using the procedures outlined by your supervisor) by reference to antecedents and consequences and without making assumptions about why a behaviour occurs.</p>
<p>K.20</p>	<p>You know that the consequences that lead to learned behaviour are either reinforcing (increasing behaviour) or punishing (decreasing behaviour).</p>		



	<p><u>Reinforcement</u></p>		
K.21	<p>You know that reinforcement is the most important principle of behaviour and that it is used in almost all behaviour change programmes, including the teaching of new skills.</p>	D.14	<p>You give examples of behaviours that have increased as a result of reinforcement, in yourself and in the learners you work with.</p>
K.22	<p>You know that reinforcement is the strengthening of a behaviour as a result of something that has followed that behaviour (a reinforcer) which increases the likelihood of the behaviour happening again.</p>		
K.23	<p>You know that reinforcers are defined functionally (i.e. a reinforcer is any stimulus that follows a behaviour and, as a result, the behaviour is more likely to occur in the future). A consequence is only a reinforcer if it has a strengthening effect upon a behaviour.</p>		
	<p><i>Positive reinforcement</i></p>		
K.24	<p>You know that positive reinforcement occurs when a behaviour is followed immediately by the presentation of a stimulus and, as a result, the behaviour occurs more often in the future.</p>	D.15	<p>You give examples of stimuli and/or events that are positive reinforcers for your behaviour and that of the learners that you work with.</p>
K.25	<p><i>Negative reinforcement</i></p> <p>You know that negative reinforcement occurs when a behaviour is followed immediately by the withdrawal or termination of a stimulus and, as a result, the behaviour occurs more often in the future.</p>	D.16	<p>You give examples of stimuli and/or events that are negatively reinforcing for your behaviour and that of the learners you work with.</p>
	<p><i>Unconditioned (primary) reinforcers and Conditioned (secondary) reinforcers</i></p>		
K.26	<p>You know that unconditioned reinforcers (often called primary reinforcers) are those that require no previous learning (e.g., food, warmth, sensory stimulation) and that conditioned reinforcers (often called secondary reinforcers) are those that have acquired reinforcing properties as a result of an association (pairing) with an unconditioned reinforcer (e.g., praise, tokens, task completion).</p>	D.17	<p>You give examples of stimuli and/or events often considered to be unconditioned/primary reinforcers and provide examples of stimuli and/or events often considered to be <i>conditioned/secondary</i> reinforcers for your behaviour and that of the learners you work with.</p>

	<u>Punishment</u>		
K.27	You know that although punishment is an important principle of behaviour it should only be used to change behaviour under exceptional circumstances, only under supervision and only after appropriate ethical review.	D.18	You do not use punishment unless at the specific request of your supervisor <u>and</u> when you are satisfied that ethical guidelines have been adhered to.
K.28	You know that there are strict ethical guidelines surrounding the use of punishment, including the fact that alternatives to punishment must be tried before a punishment procedure is put in place.		
K.29	You know that punishment is the weakening of a behaviour as a result of something that has followed that behaviour (a punisher) which decreases the likelihood of the behaviour happening again.	D.19	You give examples of events that may be punishing for your behaviour and that of the learners you work with.
K.30	You know that punishers are defined functionally (i.e. a punisher is any stimulus that follows a behaviour and, as a result, the behaviour is less likely to occur in the future). A consequence is only a punisher if it has a weakening effect upon a behaviour.	D.20	You recognise when a consequence that you deliver (including your own behaviour) is inadvertently aversive (and is likely therefore to function as a punisher) and you change the consequence.
K.31	You know that some procedures commonly used in educational practice, such as time out and response cost, are punishment procedures.		
K.32	You know that, like reinforcement, punishment can occur when a behaviour is followed immediately by the <i>presentation</i> of a stimulus and, as a result that behaviour occurs less often in the future, or when a behaviour is followed immediately by the <i>withdrawal</i> or <i>termination</i> of a stimulus and, as a result that behaviour occurs less often in the future.		

<p>K.33</p>	<p><i>Unconditioned (primary) punishment and Conditioned (secondary) punishment</i></p> <p>You know that unconditioned punishers (often called primary punishers) are those that require no previous learning (e.g., pain) and that conditioned punishers (often called secondary punishers) are those that have acquired punishing properties as a result of an association (pairing) with an unconditioned punisher (e.g., being told off).</p> <p><u>Motivating Operations</u></p>	<p>D.21</p>	<p>You give examples of stimuli and/or events often considered to be <i>unconditioned/primary</i> punishers and stimuli and/or events often considered to be <i>conditioned/secondary</i> punishers for your behaviour and that of the learners you work with.</p>
<p>K.34</p>	<p>You know that the effectiveness of a reinforcer can change – something that has worked in one instance as a reinforcer may not work on another occasion.</p>		
<p>K.35</p>	<p>You know that this could be because of a motivating operation (MO): something which momentarily changes both the effectiveness of a consequence, and the frequency of the behaviour that has in the past resulted in that consequence.</p>		
<p>K.36</p>	<p>You know that common motivating operations are deprivation (when a learner has not had a reinforcer for a long time and therefore its value is likely to increase) and satiation (when a learner has had lots of a reinforcer in the recent past and therefore it is likely to be of less interest)</p> <p><u>Stimulus control</u></p>	<p>D.22</p>	<p>You recognise when a consequence is likely to be more effective (e.g., a snack before lunch) and when it is less likely to be effective (e.g., a break following unstructured play) and adjust your use of that consequence accordingly.</p>
<p>K.37</p>	<p>You know that stimulus control is a situation in which some dimension of behaviour is altered by the presence or absence of a specific antecedent stimulus (e.g., Stimulus = green man shows at a pelican crossing; response = cross road)</p> <p><i>Discriminative Stimulus</i></p>		
<p>K.38</p>	<p>You know that a discriminative stimulus (S<sup>D</sup>) is an antecedent stimulus that increases the likelihood that a response or pattern of responding will occur because in the past that response or pattern of responding has been reinforced in the presence of the S<sup>D</sup></p>	<p>D.23</p>	<p>You give examples of S<sup>D</sup>s that evoke responses in the learners you work with.</p>

	<p><u>4-term contingency</u></p>		
K.39	<p>You know that the 4-term contingency is the interdependent relationship between any motivating operations (MO), an S<sup>D</sup>, behaviour and consequence.</p>	D.24	<p>You identify the antecedent variables (S<sup>D</sup> and any relevant MOs) and consequences of any specified instance of behaviour.</p>
K.40	<p>You know that any consequence-based behaviour change programme designed either to increase or decrease behaviour must consider all 4 components of the 4 term contingency.</p>		
	<p><u>Generalisation and Maintenance</u></p>		
K.41	<p>You know that generalisation occurs where the effects of a procedure that was used to change a target behaviour spread, such that similar behaviour changes also occur in other situations (stimulus generalisation), other behaviours also change (response generalisation), or the effects endure over time in the absence of a continuing programme (maintenance).</p>	D.25	<p>You incorporate opportunities for generalisation and maintenance into all programmes.</p>

ABA. 3: Increasing Behaviour: Rationale for targets, choosing and monitoring			
	Knowledge		Demonstrable Behaviour
	<u>Rationale for targets</u>		
K.42	You know that behaviour targets are identified through an assessment of a learner’s skills, are appropriate to the learner’s developmental level, and focus on behaviours that will be helpful to and/or are valued by them.	D.26	You contribute, under supervision, to the assessments carried out in your setting using the available tools.
K.43	You know that there are a number of specific assessment tools available to assess a learner’s existing level across all domains: daily living skills, social skills, imitation, play; and you are familiar with those used in your setting.		
K.44	You know that targets are prioritised in terms of the immediate benefits for the learner and developing the building blocks for longer term learning (i.e., teaching key or pivotal skills first).		
	<u>Defining performance criteria (Mastery)</u>		
K.45	You know that a target behaviour is described and defined using observable and measurable dimensions.		You use the specified performance criteria when working with identified targets for each of the learners with whom you work.
K.46	You know that the performance criteria specify observable or measurable dimensions.	D.27	
	<u>Monitoring and changing targets</u>		
K.47	You know that decision making should be data driven, and that this necessitates accurate data collection as specified for each intervention.	D.28	You accurately record data as specified by your supervisor.

ABA 4: Increasing Behaviour: Consequence based strategies - reinforcement			
	Knowledge		Demonstrable Behaviour
K.48	You know that the rationale for using specific positive reinforcers with learners is that you cannot assume any individual will be motivated by things that typically motivate others (praise, imitating peers, and task completion).		
K.49	You know that the aim when working with any learner is to move towards the use of naturally occurring reinforcers (e.g., task completion, praise, school/society based systems of reward).		
	<u>Establishing and choosing reinforcers</u>		
K.50	You know it is important to sample a wide range of potential reinforcers across a variety of different sensory modalities (e.g., tactile – hugs, tickling, heavy blanket; vestibular – rocking, swings; auditory – music, singing; gustatory – sweets, crisps; visual – lights, different colours).	D.29	You create opportunities for the learner to sample multiple potential reinforcers by providing items/activities on a non-contingent basis (i.e. items, activities, attention or downtime given to the learner that is not dependent on a specified response).
K.51	You know the importance of continuously establishing new reinforcers (i.e., because a learner’s interests can be transient and satiation may come into play).	D.30	You identify and use a variety of potential reinforcers for learners
K.52	You know how to pair established reinforcers with other items/activities/people to increase the range of potential reinforcers available.	D.31	You increase the range of potential reinforcers through pairing items/activities with established reinforcers as specified in the intervention/programme.
K.53	You know that activities learners engage in during their free time may be used as reinforcers because they are likely to be preferred activities. Such activities may include aspects of stereotypic/repetitive behaviour.	D.32	You choose a learner’s high preference items or activities as potential reinforcers during teaching.
		D.33	You choose as potential reinforcers items or activities that appear to have the same function as a learner’s preferred items or activities.
K.54	You know a range of procedures to identify what is potentially reinforcing for a learner at	D.34	You use a range of procedures to select potential reinforcers.

	any time (e.g., asking, observing, formal preference assessments).		
K.55	You know the significance of varying reinforcers in a session (i.e., to reduce the chances of satiation).	D.35	You continuously assess the environment to inform the selection and use of reinforcers
K.56	You know the importance of maintaining the value of reinforcers and that if reinforcers are available at other times (i.e., when they are not contingent on a target behaviour) then they will become less effective	D.36	You ensure, where possible, that reinforcers are not available non-contingently other than if pre-determined by your supervisor (see section on Non Contingent Reinforcement K.167).
K.57	You know that primary reinforcers are most often used during the early stages of intervention and also understand the importance of fading their use as soon as possible.	D.37	You try to avoid relying entirely on primary reinforcers, and whenever possible you attempt to establish or use conditioned reinforcers
K.58	You know the ethical implications of using primary reinforcers such as the need to use them in moderation.	D.38	You abide by ethical guidelines as to what primary reinforcers are appropriate for use, when to use them, and in what quantities.
		D.39	You fade the use of unconditioned/primary reinforcers and increase use of conditioned reinforcers when appropriate under supervision.
K.59	You know that the advantages of using primary reinforcers include the fact that they do not depend on learning and can be very powerful.		
K.60	You know the disadvantages of primary reinforcers including the fact that they can be difficult to fade and that their use can seem strange in some environments to other professionals, family members, or the general public.		
K.61	You know that it is important to establish secondary reinforcers as a step towards more naturally occurring reinforcement contingencies.	D.40	You pair secondary reinforcement (praise/social attention/activities) with primary reinforcement on a contingent basis under supervision.
K.62	You know the importance of pairing your own presence with reinforcement: the learner comes to associate a teaching session with activities that are of interest to them, and your praise/social	D.41	You create an environment that motivates the learner to interact with you by pairing your presence with established reinforcers (e.g., praise, smile, toy, tickle) on a non-contingent basis.

	attention/activities become secondary reinforcers.		
	<u>Delivering reinforcement: Schedules of reinforcement</u>		
K.63	You know that reinforcement can be delivered following every response (i.e. continuous reinforcement) or intermittently (i.e. after a fixed or variable number of responses, or fixed or variable amount of time) and that the way that reinforcement is delivered (the schedule of reinforcement) affects learning.	D.42	You initially provide immediate reinforcement of each instance of the completed target response when teaching a new skill.
K.64	You know that, when working on a new skill, reinforcement should occur after each response (i.e., because it provides the strongest association between the response and the reinforcer) Providing reinforcers rapidly also reduces the chances that other inappropriate behaviours may be inadvertently reinforced.		
K.65	You know that once a skill has been acquired, it is important to gradually and systematically thin a schedule of reinforcement so the learner gets accustomed to more natural contingencies of reinforcement (i.e. reinforcers are increasingly delivered intermittently).	D.43	You thin a schedule of reinforcement as directed by your supervisor during a new skill teaching programme.
K.66	You know that on occasion it may be necessary to temporarily increase the frequency of reinforcement or return to tangible (i.e., something material) reinforcement to maintain motivation.	D.44	You follow an agreed protocol with respect to the temporary (within session only) relaxation of a schedule of reinforcement based on a learner's motivation, and discuss any such instances with your supervisor.
	<u>Delivering reinforcement: Differential reinforcement</u>		
K.67	You know that programmed differential reinforcement is the delivery of reinforcers to only those responses that meet a specified criterion whilst not reinforcing other responses.		
K.68	You know that differential reinforcement can be used to strengthen and shape desirable behaviour and weaken undesirable behaviour.		
K.69	You know to look for opportunities to reinforce a learner's appropriate behaviour	D.45	You consistently provide positive reinforcers when the learner is engaging in appropriate behaviour (e.g., remaining



	even when it is not specifically targeted in a programme.		on task or using an appropriate communicative response rather than engaging in <a href="#">problem behaviour</a> )
K.70	You know the importance of relying on the highest value reinforcers (those which appear to be most effective) for those behaviours that a learner finds most difficult.		
	<u>Delivering reinforcement: Token Systems</u>		
K.71	You know that a token system is a reinforcement system used when it is helpful to be able to delay the delivery of a chosen reinforcer until after a certain period of time has elapsed or an activity has finished, but in the meantime some form of reinforcement is necessary.	D.46	You use various token systems to increase target behaviours.
		D.47	You deliver a token immediately contingent on a target behaviour and make sure the learner sees that a token has been obtained.
		D.48	You make clear the contingency (relationship) between the token system and back up reinforcers (e.g., the number of tokens required for exchange).
		D.49	You deliver tokens at a rate specified in the intervention programme.
K.72	You know that tokens are generalized conditioned reinforcement (i.e., that tokens can be exchanged for a number of reinforcers).		
K.73	You know that the “back up” reinforcer is the object or activity/experience that can be purchased by or exchanged for tokens.	D.50	You identify “back up” reinforcers
		D.51	You use preference assessments to identify potential “back up” reinforcers.
		D.52	You periodically reassess the value of the “back up” reinforcers
K.74	You know that strategies to ensure that a token system remains effective include adjusting the reinforcement schedule and reassessing the learner’s preferences.	D.53	You make use of the available strategies to ensure that a token system remains effective

ABA. 5: Increasing Behaviour: Antecedent based strategies - Stimulus control and antecedent procedures			
	Knowledge		Demonstrable Behaviour
	Stimulus control <u>Establishing stimulus control</u>		
K.75	You know that a behaviour can be said to be under stimulus control when some dimension of it is altered by the presence or absence of a specific antecedent stimulus.	D.54	You give examples of established stimulus control in relation to your own behaviour and that of the learners you work with.
K.76	You know that establishing stimulus control is an important aspect of behaviour change, is widely used in teaching, and plays a critical role in most forms of learning.		
K.77	You know that a stimulus will not evoke behaviour change unless a contingency (relationship) has been established.		
K.78	You know that the way to establish stimulus control in the context of behaviour change programmes is through discrimination training.		
K.79	You know that discrimination training involves reinforcing a response in the presence of one stimulus; whilst in the absence of that stimulus, or the presence of another stimulus that same response is not reinforced.	D.55	You establish stimulus control through the effective use of reinforcement.
		D.56	You present stimuli and reinforcers correctly to achieve discrimination.
		D.57	You establish a stimulus to function as an S <sup>D</sup> by reinforcing a behaviour in its presence.
K.80	You know that there are a number of strategies that can be used to enhance stimulus control and that these include: prompting, prompt fading, instructions, and modelling and imitation.		

	<p><u>Prompting</u></p>		
K.81	<p>You know that prompts are additional antecedent stimuli used to evoke a response in the presence of the S<sup>D</sup> that will eventually control that response.</p>	D.58	<p>You identify when to use a prompt.</p>
		D.59	<p>You identify prompts to be used in different situations.</p>
		D.60	<p>You use a (programmed) prompt to evoke a desired behaviour.</p>
K.82	<p>You know that when introducing a new skill, prompting is likely to be required.</p>	D.61	<p>You use regular prompts when introducing a new skill as specified in the intervention programme</p>
	<p><i>Using prompts</i></p>		
K.83	<p>You know that learners can come to rely on prompts and that therefore it is important to eliminate them as soon as possible so that the S<sup>D</sup> alone is sufficient to control the target response.</p>	D.62	<p>You note when a learner is, or is in danger of becoming, prompt dependent and raise it with your supervisor.</p>
K.84	<p>You know that there are many different ways of prompting within the parameters of physical, visual and auditory prompting and prompt fading procedures should be planned for.</p>		
K.85	<p>You know that the least intrusive or salient prompt that will evoke the target response is the most desirable one to choose.</p>		
K.86	<p>You know that it is important to use prompts that can be faded</p>	D.63	<p>You identify when to fade a prompt and give examples of how to achieve that.</p>

<p>K.87</p>	<p>You know that there are several ways to fade prompts:</p> <ul style="list-style-type: none"> <li>• the most-to-least prompting strategy begins by giving the highest level of assistance and systematically fades it.</li> <li>• the least-to-most prompting strategy gives the opportunity to perform the behaviour with the least amount of assistance. The level of prompting is systematically increased if the learner is unsuccessful.</li> <li>• stimulus fading involves the fading of an exaggerated dimension of a stimulus (e.g. starting off with larger than usual hands on a clock and moving gradually towards hands that are the right size).</li> <li>• Time delay involves the insertion of systematically increased time delays between the S<sup>D</sup> and the prompt.</li> </ul>	<p>D.64</p> <p>D.65</p> <p>D.66</p> <p>D.67</p>	<p>You progressively reduce the level of prompting in a most-to-least hierarchy depending upon the learner's response.</p> <p>You increase the level of prompting in a least-to-most hierarchy if the learner is unsuccessful at a particular prompt level.</p> <p>You progressively fade a dimension of a stimulus depending on the learner's response.</p> <p>You progressively increase the time delay between an S<sup>D</sup> and the prompt depending on the learner's response.</p>
<p>K.88</p>	<p>You know that unprompted responses should be reinforced.</p>	<p>D.68</p>	<p>You reinforce unprompted responses.</p>
<p>K.89</p>	<p>You know that responses may be prompted inadvertently (e.g., by a tone of voice, by looking at the correct response).</p>	<p>D.69</p>	<p>You use team meetings and video recordings to identify inadvertent prompts in your behaviour and that of others, and you agree steps to reduce any identified problems.</p>
<p>K.90</p>	<p>You know that the effectiveness of any prompt is influenced by the way in which it is delivered (e.g., your position in relation to the learner).</p>	<p>D.70</p>	<p>You use team meetings and video recordings to identify any factors that might influence prompt effectiveness.</p>
<p>K.91</p>	<p><u>Instructions</u></p> <p>You know that instructions are verbal antecedent stimuli that can be used to induce behaviour that can then be reinforced.</p>	<p>D.71</p>	<p>You give effective verbal instructions (oral, written, or pictorial/symbol) to induce a target behaviour.</p>
<p>K.92</p>	<p>You know that instructions can be oral, written, or in pictorial/symbol form.</p>		
<p>K.93</p>			

	You know instructions will be most effective if the learner has a history of being taught by instruction.		
K.94	You know that the first stage of using instructions is to teach the learner to respond to instructions.	D.72	You teach responding to instructions by: <ul style="list-style-type: none"> <li>• Inserting instructions before naturally occurring behaviours</li> <li>• Reinforcing behaviours taught under instruction</li> <li>• Prompting and reinforcing the correct response for new target instructions</li> </ul>
K.95	You know that instructions may be more effective when combined with other procedures such as modelling, prompting, and rehearsal.		
	<u>Modelling and Imitation</u>		
K.96	You know that models are antecedent stimuli that are topographically similar to the target imitative behaviour.		
K.97	You know that modelling consists of presenting a model that sets the occasion for the imitative response, which is then reinforced.	D.73	You accurately model target behaviour.
K.98	You know that attending and imitative skills are a pre-requisite to the successful use of modelling as a behaviour change strategy.	D.74	You use modelling only when appropriate pre-requisites are acquired.
K.99	You know that modelling will have the most successful outcomes for the learner when the model is similar to the learner, (i.e similar age/stature) when critical aspects of the model have been emphasised (i.e. prompts used to show which components are important), and when the model is accurate (i.e., completes an action successfully).	D.75	You choose models (e.g., peers) similar to, or respected by the learner where possible.
		D.76	You model actions from the perspective of the learner.
K.100	You know that modelling may be more effective when combined with other procedures such as instructions, prompting, and rehearsal.	D.77	You participate in the identification of the most appropriate procedures to enhance the effectiveness of modelling

ABA. 6: Increasing behaviour: Combining antecedent (stimulus) and consequence strategies – 4-term contingency and teaching complex behaviours			
	Knowledge		Demonstrable Behaviour
	Using the 4 term contingency for effective teaching		
K.101	You know that the 4-term contingency underpins all behaviourally based teaching methods e.g. teaching methods often used with children and young people with autism such as: Discrete Trial Teaching (DTT), Natural Environment Teaching (NET) or Incidental Teaching (IT), Pivotal Response Teaching (PRT), Picture Exchange Communication System (PECS), Functional Communication Training, <a href="#">Direct Instruction</a> .	D.78	You use the 4-term contingency to teach a new behaviour by identifying the target response; using a stimulus or stimuli that will cue that target response; and selecting a reinforcing consequence to increase the probability that the response will occur again in the presence of that stimulus or stimuli.
		D.79	You recognise in any teaching situation, any potential problems with the 4-term contingency: should the stimulus be changed; is the response too easy or too difficult; is the consequence effective?
		D.80	You use agreed strategies to adapt when extraneous variables appear to be influencing a learner's behaviour.
K.102	You know that a discriminative stimulus (S <sup>D</sup> ) selected in a teaching situation is the one chosen to evoke the target behaviour. This can be any change in the environment including objects, instructions (written or verbal), people, sound etc.		
K.103	You know that you must know the target response and its performance criteria prior to teaching.		
K.104	You know that if other behaviours occur at the same time as a response they may be inadvertently reinforced.	D.81	You do not reinforce a response if it is accompanied by inappropriate collateral behaviours that might inadvertently be reinforced.
K.105	You know that behaviours occurring at the same time includes "scrolling" which is the emission of several responses within the learner's repertoire that have been previously reinforced under similar stimulus conditions but with a different S <sup>D</sup> .	D.82	You do not provide reinforcement for a "scrolled" response.
K.106	You know that a response should be emitted within a specified time as defined by the performance criteria.		

K.107	You know that the consequence in a teaching situation is a specified stimulus and that it follows and maintains the response.		
K.108	You know that the consequence must be delivered in accordance with the programme requirements	D.83	You deliver a consequence in accordance with the programme requirements.
K.109	You know that there are a number of procedures (error correction procedure) that can be followed in the event of an incorrect response or no response and that this will depend on the specified intervention programme.	D.84	You follow the error correction procedure specified in the intervention programme.
K.110	You know that Discrete Trial Teaching (DTT) is a structured teacher initiated instructional method in which a tutor sequentially presents an S <sup>D</sup> and provides a consequence for the response for a number of trials. Data are collected on the response.	D.85	You run a discrete trial effectively using any prompts and the error correction procedure specified in the behaviour programme.
K.111	You know that Natural Environment Teaching (NET) or Incidental Teaching (IT) is an instructional method similar to that of DTT which also uses the 4-term contingency. However in NET the teaching opportunity is learner rather than instructor initiated often by requests for preferred items which then become both the S <sup>D</sup> and the potential reinforcer. It is also less structured and takes place in the context of other activities.	D.86	You run an NET trial effectively using any prompts and the error correction procedure specified in the behaviour programme.
K.112	You know that all effective teaching procedures additionally require the effective management of teaching materials and appropriate data collection.	D.87	You keep the teaching area neat and clean.

<p>K.113</p>	<p>You know that any teaching practice takes place within the context of a learner's entire programme and that therefore, in addition to the skills needed to run a single unit of learning effectively, good teaching practice also takes account of all behaviour based principles to structure opportunities for learning both within teaching sessions and across teaching sessions.</p>	<p>D.88</p> <p>D.89</p> <p>D.90</p> <p>D.91</p> <p>D.92</p>	<p>You organise all materials prior to the teaching session.</p> <p>You leave materials ready for the following session.</p> <p>You take data according to the intervention programme.</p> <p>You begin a teaching session promptly.</p> <p>You provide an appropriate mix of easy and difficult tasks.</p>
<p>K.114</p>	<p>Teaching complex behaviours</p> <p><u>Shaping</u></p> <p>You know that shaping is a behaviour change procedure.</p>		
<p>K.115</p>	<p>You know that shaping is used to establish novel topographies or dimensions of behaviour.</p>	<p>D.93</p>	<p>You use shaping to establish novel topographies or dimensions of behaviour.</p>
<p>K.116</p>	<p>You know that shaping is the differential reinforcement of successive approximations of a target behaviour.</p>	<p>D.94</p>	<p>You follow instructions for any shaping procedure as part of a behaviour change strategy in accordance with the intervention programme under the direction of your supervisor.</p>
<p>K.117</p>	<p>You know that target behaviours are operationally defined.</p>	<p>D.95</p>	<p>You operationally define a target behaviour in preparation for shaping.</p>
<p>K.118</p>	<p>You know that successive approximations are behaviours that are increasingly similar to the target behaviour.</p>	<p>D.96</p> <p>D.97</p> <p>D.98</p> <p>D.99</p>	<p>You identify the starting behaviour.</p> <p>You identify approximations of the target behaviour.</p> <p>You reinforce successive approximations.</p> <p>You determine when to move to the next approximation.</p>
<p>K.119</p>	<p>You know that shaping is distinguished from differential reinforcement by changing criteria for reinforcement.</p>		



<u>Task Analysis and Chaining</u>			
K.120	You know that a behaviour chain is a complex behaviour consisting of two or more responses that follow in sequence and time, each associated with a specific stimulus condition.	D.100	You give examples of complex behaviours that consist of a number of distinct responses (e.g., hand washing - turn on tap, put hands under water, pick up soap, rub hands on soap, put down soap, rinse hands, turn off tap, pick up towel, dry hands).
K.121	You know that many daily living skills are complex behaviours (see K.11).	D.101	You break down a complex behaviour by describing the component skills in an appropriate order.
K.122	You know that a task analysis involves breaking down a behaviour chain into its component responses; that is, complex tasks are broken down into small teachable units.	D.102	You contribute to task analyses for complex target behaviours such as daily living skills, under the direction of your supervisor.
K.123	You know that in addition to knowing the component responses of a complex behaviour, to teach that behaviour you also need to assess the learner's pre-existing skill with each of those responses.		

<p>K.124</p>	<p>You know that the procedures used to teach complex behaviours include:</p> <ul style="list-style-type: none"> <li>• forward chaining: the first step in the chain is taught (using the 4-term contingency) until the mastery criteria are met. The rest of the chain is prompted. Subsequent steps are added in sequence step by step and also trained to mastery. Reinforcement is delivered contingent on the performance of all of the steps up to the point of training.</li> <li>• backwards chaining: all steps are performed by the tutor apart from the last which is taught (using the 4-term contingency). When the learner is able to independently complete that step to criterion, the second to last step is trained to criterion. Subsequent steps are added sequentially. Reinforcement is delivered when the last two steps are performed, then the last three and so on.</li> <li>• total task chaining: each step of the chain is taught during each teaching session. Prompts are provided for any steps that the learner is unable to perform independently. The chain is taught until all behaviours can be performed independently to a pre-determined standard.</li> </ul>	<p>D.103</p>	<p>You demonstrate the ability to use forward, backward and total task chaining under the direction of the programme consultant or supervisor showing:</p> <ul style="list-style-type: none"> <li>• Effective prompting of new steps</li> <li>• Effective use of differential reinforcement (to train to criterion)</li> <li>• Highlighting any areas that need further shaping or modification.</li> </ul>
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ABA. 7: Increasing behaviour: the importance of developing a language repertoire			
	Knowledge		Demonstrable Behaviour
K.125	You know that language is behaviour and like all other behaviours happens for a reason.		
K.126	You know that the same language can be used for different reasons (e.g., a learner can say “biscuit” because they want a biscuit, or “biscuit” when asked “what did you have at break-time”).		
K.127	You know that verbal behaviour includes a learner’s generated language (speaker/expressive) as well as their understanding of language (listener/receptive).		
K.128	You know that verbal behaviour includes all forms of language use including spoken, signed, gesture, use of symbols, text, and thoughts.	D.104	You give examples of non-vocal verbal behaviour (e.g., gestures, signs, symbols) in your own behaviour and that of the learners with whom you work.
K.129	You know that there are a number of augmentative alternative communication systems (AAC) that can be incorporated into ABA interventions as a functional alternative to vocal production.	D.105	You seek to learn how to use and demonstrate proficiency using the communication systems for each of the learners you work with.
K.130	You know that there are a number of factors to consider before deciding which communication system is most appropriate for each learner (e.g., communication needs, physical ability, level of development).	D.106	You outline the reasons for the communication system chosen for each of the learners you work with
K.131	You know that increasing language, like any other behaviour is achieved through the 4-term contingency.		

<p>K.132</p>	<p><u>Classification of verbal behaviour</u></p> <p>You know that verbal behaviour is classified according to its function into: mands, echoics, tacts and intraverbals</p> <p><i>Mands</i></p>		
<p>K.133</p>	<p>You know that a mand is a request for something, someone, or for someone to do or say something that is evoked by a motivating operation and specifies the reinforcer that maintains it. Food deprivation (hunger) may evoke “biscuit” or the presentation of a symbol for “biscuit”. Obtaining a biscuit increases the likelihood of the same mand occurring again under the same or similar circumstances.</p>	<p>D.107</p>	<p>You give examples of mands from your own behaviour and from the learners you work with.</p>
<p>K.134</p>	<p>You know that the development of mands is essential for any learner:</p> <ul style="list-style-type: none"> <li>• manding is the first function of language that develops</li> <li>• manding is the only function of language that directly benefits the learner and therefore teaches the value of language (it allows a learner to get what they want/to get rid of what they do not want)</li> <li>• many problem behaviours function as mands (e.g., a tantrum to get a biscuit) and can often be easily reduced by teaching a more appropriate mand (e.g., biscuit)</li> </ul>	<p>D.108</p>	<p>You contrive or capture motivating operations and use these as opportunities to teach manding (e.g., giving a learner a snack in a Tupperware box that is hard to open to contrive the MO for asking “help” or “open” or using a learner’s interest in a particular activity to work on target words/signs/picture exchange).</p>
<p>K.135</p>	<p>You know the importance in early mand teaching of using only mands that can be delivered immediately and that relate to specific items (e.g., “biscuit”, “ball”, “tickle” as opposed to “more”, “please” or “eat” that might become a default for many items).</p> <p><i>Echoics</i></p>	<p>D.109</p>	<p>You target mands that specify the individual/item/activity early on in mand teaching</p>
<p>K.136</p>	<p>You know that an echoic or imitated response is evoked by a verbal stimulus and is exactly the same as that verbal stimulus (e.g., you say “Biscuit” and the learner says “Biscuit”) and is followed by reinforcement (e.g., praise for saying “Biscuit”).</p>	<p>D.110</p>	<p>You give examples of echoics in the learners you work with.</p>

<p>K.137</p>	<p>You know that echoics can be used to prompt other verbal responses.</p>	<p>D.111</p>	<p>You make effective use of echoics as prompts to teach other forms of verbal behaviour when it is appropriate to do so.</p>
<p>K.138</p>	<p><i>Tacts</i></p> <p>You know that a tact is a verbal response (saying “biscuit”) evoked by a non-verbal stimulus (e.g., seeing a biscuit or a picture of a biscuit in a book) and followed by reinforcement (e.g., attention for talking about the object seen)</p>	<p>D.112</p>	<p>You give examples of tacts from your own behaviour and from the learners you work with.</p> <p>You use items that are relevant to the learner when teaching tacts.</p>
<p>K.139</p>	<p><i>Intraverbals</i></p> <p>You know that an intraverbal is a verbal response which is evoked by a verbal stimulus (e.g., a question/statement, including one’s own thoughts) and followed by reinforcement (e.g., teacher’s approval, an answer etc). For example, when asked the question “what do you like to eat at breaktime?” the learner responds “biscuit”.</p>	<p>D.113</p>	<p>You give examples of intraverbals from your own behaviour and from the learners you work with.</p>
<p>K.140</p>	<p>You know that having intraverbal skills is the basis of conversation and that it is best established by developing conversational skills relevant to the learner.</p>	<p>D.114</p>	<p>You use intraverbals to develop conversational skills appropriate to the age and interests of the learner</p>

ABA. 8: Decreasing Behaviour: Rationale for intervention, choosing and monitoring			
	Knowledge		Demonstrable Behaviour
	<p><u>Rationale for intervention</u></p>		
K.141	<p>You know that the criteria for whether or not you need to intervene to decrease a behaviour include:</p> <ul style="list-style-type: none"> <li>• Is there an impact on the quality of life of the learner or others?</li> <li>• Is there a risk of physical harm of the learner or others?</li> </ul>		
K.142	<p>You know that the rationale for any intervention that aims to decrease a behaviour will be based on obtaining a clear description of that behaviour and on an assessment of the factors that are maintaining that behaviour.</p>		
K.143	<p>You know that any programme that aims to decrease a behaviour should also target to increase an appropriate replacement behaviour.</p>		
K.144	<p>You know that a descriptive functional behaviour assessment is a systematic method of obtaining information regarding a behaviour under investigation.</p>		
K.145	<p>You know that the rationale for conducting descriptive functional behaviour assessments is to obtain information for developing hypotheses regarding the function of the behaviour. The intervention then tests the hypothesis, which is supported if it is effective</p>		
K.146	<p>You know that descriptive functional behaviour assessments can be direct or indirect but that both are based solely on observable or reported and measurable dimensions of behaviour.</p>	<p>D.115</p> <p>D.116</p>	<p>You contribute to the assessment procedures used within your setting.</p> <p>You give clear and objective information regarding behaviour.</p>

K.147	<p>You know that <i>Direct Assessment</i> can include:</p> <ul style="list-style-type: none"> <li>• “ABC” observations, used to indicate relationships between MOs, S<sup>D</sup>s , and consequences in relation to the target behaviour.</li> <li>• Scatter graphs, used to indicate if there are specific times at which a behaviour is more likely to occur</li> </ul>	D.117	<p>You accurately collect and record data collected to understand a behaviour as directed by your supervisor.</p>
K.148	<p>You know that <i>Indirect Assessment</i> can include rating scales and interviews (e.g., Functional Assessment Interview)</p> <p><u>Defining target behaviour</u></p>		
K.149	<p>You know that, as with behaviours that are chosen to increase, a behaviour targeted for decrease is described in operational terms with specified performance criteria.</p> <p><u>Monitoring and changing targets</u></p>	D.118	<p>You use the performance criteria when working with identified targets for each of the learners with whom you work.</p>
K.150	<p>You know that as with behaviours targeted for increase, all decision making regarding behaviours targeted for decrease should be data driven and that this necessitates accurate data collection as specified for each intervention.</p>	D.119	<p>You accurately record data for any intervention in place as specified by your supervisor.</p>

ABA. 9: Decreasing behaviour: Consequence based strategies - Using an understanding of reinforcement to reduce problem behaviour			
	Knowledge		Demonstrable Behaviour
	<u>Identifying a maintaining reinforcer</u>		
K.151	You know that all behaviours that have developed have been reinforced at some stage.		
K.152	You know that this also applies to “problem” behaviours and that they will have either been positively or negatively reinforced.		
K.153	You know that many problem behaviours such as self injury, aggression, property damage have been positively reinforced by attention, access to primary reinforcers, preferred items or activities or sensory stimulation.	D.120	You participate in the identification of instances where positive reinforcement is maintaining a behaviour.
K.154	You know that many problem behaviours such as self injury, aggression, property damage have been negatively reinforced by escape from demands, avoidance of unpleasant situations; avoidance of sensory stimulation including pain.	D.121	You can participate in the identification of instances where negative reinforcement is maintaining a behaviour.
K.155	You know that to decrease a “problem behaviour” you need to identify the maintaining reinforcer.		
K.156	You know that best practice when reducing problem behaviour is to teach a functionally equivalent appropriate behaviour. Under most circumstances this is known as DRA (Differential Reinforcement of Alternative behaviour)	D.122	You follow instructions for any differential reinforcement procedure as part of a behaviour reduction strategy in accordance with the schedule specified in the intervention programme.
K.157	You know that a DRA procedure is often accompanied by extinction (see section on Extinction K158-163)		



<u>Extinction</u>			
K.158	You know that extinction (as a general principle) is the weakening of a behaviour as a result of withholding the consequences that have, in the past, reinforced that behaviour. Extinction is almost always used with a DRA procedure	D.123	You give examples of an extinction procedure that has been used with a learner you have worked with.
K.159	You know that extinction (as a behaviour change procedure) is the withholding of a maintaining reinforcer.	D.124	You give an example of a potential extinction procedure for a problem behaviour in a learner with whom you work.
K.160	You know the difference between extinction and ignoring.		
K.161	You know that an extinction procedure could result in an extinction burst.	D.125	You give examples of events often considered to be an extinction burst.
K.162	You know the ethical considerations when using extinction and in particular the risks associated with an extinction burst.	D.126	You work with an extinction burst (if one occurs) as specified in the intervention programme.
K.163	You know that consistency is essential when using extinction procedures – all sources of reinforcement for the target behaviour should be identified and then withheld consistently by everyone in contact with the learner.		

ABA.10: Decreasing behaviour: Antecedent based strategies			
	Knowledge		Demonstrable Behaviour
K.164	<p><u>Antecedent based strategies</u></p> <p>You know that antecedent interventions aim to prevent problem behaviour occurring and can therefore be very effective:</p> <ul style="list-style-type: none"> <li>• they are easy to implement,</li> <li>• there are no collateral effects of problem behaviour (e.g., injury, disruption)</li> <li>• problem behaviours are not further strengthened</li> <li>• there are increased opportunities for learning appropriate behaviours</li> </ul>		
K.165	<p>You know that antecedent interventions can involve manipulating motivating operations or stimulus control.</p>	D.127	<p>You give examples of stimuli (including your own behaviour) that may evoke problem behaviour in the learners that you work with and bring them to the attention of your supervisor.</p>
K.166	<p>You know that the disadvantage of antecedent based strategies used alone is that the learner is not being taught appropriate replacement behaviour.</p>		
K.167	<p><u>Non Contingent Reinforcement (NCR)</u></p> <p>You know that NCR can be used as an antecedent strategy by providing the maintaining reinforcer non-contingently (i.e., so that the learner does not have to engage in the problem behaviour to access reinforcement).</p>	D.128	<p>You implement an NCR procedure according to the specified intervention programme</p>

ABA.11 Measurement of behaviour and data display			
	Knowledge		Demonstrable Behaviour
K.168	<p><u>Procedures for measuring behaviour</u></p> <p>You know that there are a number of recording tools/devices that enable you to take accurate measurements and to record responses and that these include timers; tally counters; stopwatches; Computer assisted measurement devices; video; and pen and paper.</p>	D.129	You use the recording devices within your setting to accurately measure those target responses identified in the intervention programme.
K.169	<p>You know that there are a number of ways of recording data to measure different dimensions of behaviour including every instance and where a behaviour occurs (or not) within specified segments of time.</p>	D.130	You refer to the data collection guidelines established by your supervisor to collect data across sessions in an accurate and consistent way.
K.170	<p><u>Data display</u></p> <p>You know that the first set of data taken in any intervention is baseline data: a measure of the target behaviour before intervention begins. Thus, progress is measured against baseline data.</p>	D.131	You use the recording devices within your setting to accurately measure the baseline data prior to the implementation of an intervention programme
K.171	<p>You know that the behavioural measurements are used to assess whether an intervention programme is working, and that any decisions made in respect of that intervention are based on the measurements.</p>	D.132	You use information from data displays to raise questions regarding performance with your supervisor.

ABA.12: Behaviour Change Procedures – Generalisation and Maintenance			
	Knowledge		Demonstrable Behaviour
	<u>Maintenance</u>		
K.172	You know that it is essential in any behaviour change programme to plan for both generalisation and maintenance.	D.133	You incorporate opportunities for generalisation and maintenance into all teaching sessions if opportunities present.
K.173	You know that maintenance is the extent to which a learner continues to perform a target behaviour after a part or all of the intervention has stopped.	D.134	You collect and monitor maintenance data to ensure retention of skills.
	<u>Generalisation</u>		
K.174	You know that maintenance is best achieved through the transfer from contrived to naturally occurring contingencies of reinforcement; through thinning the reinforcement schedule; and by making the training environment as close to the natural environment as possible (generalisation).	D.135	You progress from continuous and contrived schedules of reinforcement to more natural, intermittent schedules of reinforcement as directed by your supervisor.
		D.136	You include NET as directed by your supervisor.
K.175	You know the importance of programming for generalisation to ensure that the effects of a behaviour change procedure result in a transfer across time, settings, individuals and behaviours.		
	<u>Types of generalisation</u>		
K.176	You know that there are two types of generalisation: stimulus and response.		
K.177	You know that stimulus generalisation is the spread of effects over different stimulus conditions (e.g, being able to drive a mini after you have learned to drive a Renault; putting up your hand in a maths class after learning to do so in English) These different stimulus conditions include: <ul style="list-style-type: none"> <li>• Setting</li> <li>• Materials</li> <li>• People</li> <li>• Time of day</li> <li>• Language</li> </ul>	D.137	You increase the range of stimuli presented to your learner and reinforce correct responses to new stimuli, as directed by your supervisor.

<p>K.178</p>	<p>You know that response generalisation is the spread of effects such that the learner emits a variety of responses to a given stimulus (e.g., saying “Hi” or “hello” or waving when someone comes into a room).</p>	<p>D.138</p>	<p>You reinforce appropriate examples of response generalisation as they occur.</p>
<p>K.179</p>	<p>You know that the aim of generalisation is for the learner to use a taught skill appropriately in the natural environment, or to apply the learning of one skill to other situations, and that training needs to increasingly approximate that of the natural environment</p>	<p>D.139</p>	<p>You use appropriate prompting strategies to elicit response generalisation when necessary.</p>
<p>K.180</p>	<p><u>Promoting generalisation</u></p> <p>You know that there are a number of strategies to promote generalisation. These include:</p> <ul style="list-style-type: none"> <li>• Teaching sufficient examples: both stimulus and response</li> <li>• Making the instructional setting as similar as possible to the natural setting</li> <li>• Maximising contact with naturally occurring reinforcement</li> <li>• Teaching self-management skills</li> </ul>	<p>D.140</p>	<p>You introduce new examples of the teaching materials once the required response has been met with those used initially and vary them going forward.</p>
		<p>D.141</p>	<p>You vary tasks within teaching sessions and intersperse those on different levels of acquisition.</p>
		<p>D.142</p>	<p>You vary the setting for teaching when appropriate (e.g, use a visit to a shop as an opportunity to work on a maths skill)</p>
		<p>D.143</p>	<p>You incorporate teaching opportunities into everyday activities.</p>
		<p>D.144</p>	<p>You maximise teaching opportunities that have the potential to contact naturally occurring contingencies by capitalising on unexpected events.</p>
		<p>D.145</p>	<p>You teach a learner how to contact/look for or request natural contingencies of reinforcement.</p>

ABA.13: Behaviour Change Procedures – Self Management Strategies			
	Knowledge		Demonstrable Behaviour
K.181	You know that self management is the design, arrangement and implementation of behaviour change procedures to change one’s own behaviour.	D.146	You support self management with learners: involving learners appropriately in the identification of targets; encouraging learners and reviewing progress of the procedure.
K.182	You know that self management strategies are an important part of promoting self help and independence.		
K.183	<p>You know that self management teaches a person to:</p> <ul style="list-style-type: none"> <li>• Identify and provide consequences for the behaviour targeted for change.</li> <li>• Arrange contingencies to support self management reinforcement.</li> <li>• Identify and display alternative responses that are competitive and/or incompatible with the target behaviour</li> <li>• Identify internal and external precursors to the target behaviour (e.g, S<sup>p</sup>s, MOs)</li> <li>• Identify the immediate and delayed positive and negative consequences of engaging in the target behaviour.</li> </ul>	D.147	<p>You help learners use appropriate antecedent and consequence based self-management procedures such as:</p> <ul style="list-style-type: none"> <li>• Behavioural contracts</li> <li>• Manipulation of MOs</li> <li>• Arranging the environmental stimuli to increase or reduce behaviour</li> <li>• Self administered reinforcers and punishers for desirable/less desirable behaviours.</li> </ul>

Professionalism

P.1	Responsible Conduct		
	Knowledge		Demonstrable Behaviours
	<u>Ethical and regulatory guidelines</u>		
K.1	You know that the Guidelines for Responsible Conduct, produced by the Behaviour Analyst Certification Board (BACB) set out the ethical and professional standards of the profession of Applied Behaviour Analysis (ABA).	D.1	You practice only within your limits of competence in ABA and maintain competence under appropriate supervision.
K.2	You know that it is recognised as good professional practice for all behaviour analysis practitioners to receive appropriate supervision.		
K.3	You know that anyone working with vulnerable populations has, in addition, to adhere to current legislation relating to the safeguarding of such populations including reporting duties.	D.2	You practice in accordance with the current statutory framework in respect of the care and protection of vulnerable persons.
K.4	You know the Code of Practice and Conduct of your own organisation and of any establishments within which you may be working including the limitations on physical intervention.	D.3	You ensure that the personal dignity, health and safety of those with whom you work with are fully protected at all times.
K.5	You know the importance of working under an agreed contract with your employer which specifies your duties, pay, working hours, holiday, sick leave and termination of contract.	D.4	You work within the terms of an agreed contract.
K.6	You know the lines of responsibility between yourself and your employer, and in respect of those with whom you work, and their families.	D.5	You seek to clarify lines of responsibility if they are not clear.
K.7	You know that if you are self employed you have a responsibility to ensure that you adhere to any legal and insurance requirements surrounding self-employment.		

	<u>Professional and Personal Conduct</u>		
K.8	You know the importance of maintaining clear professional boundaries with all <a href="#">stakeholders</a> .	D.6	You do not make recommendations or offer opinions concerning prognosis, progress, medical issues or other treatments with individuals or their families.
		D.7	You refer to your supervisor any personal or professional issues including safeguarding concerns that might affect the integrity of the programmes on which you work.
K.9	You know the importance of presenting yourself in a professional manner.	D.8	You dress and behave in a way that minimises risk to yourself and others and that conveys respect for stakeholders taking account of the age and stage of development of those you are working with.
K.10	You know the importance of behaving in such a way that maximises your personal safety and the safety of others e.g., wear appropriate footwear, not wear jewellery that could cause injury to yourself or others.		
	<u>Scientific basis of ABA</u>		
K.11	You know that ABA is evidence based and relies on scientifically derived knowledge.	D.9	You work on only those <a href="#">targets</a> set out in a <a href="#">curriculum</a> or <a href="#">programme</a> as agreed by your supervisor and do so according to agreed protocols.
K.12	You know that procedural integrity is a key factor of successful outcomes and the importance of highlighting to your supervisor when programmes are not being adhered to.	D.10	You bring any concerns or questions relating to the programme to your supervisor in a timely manner.
		D.11	You bring to the attention of your supervisor any ethical violations or failure to follow specified programmes on the part of other individuals in the setting.
K.13	You know that empiricism is one of the underlying assumptions of Behaviour Analysis and that this involves accurate and timely data collection.	D.12	You collect data and/or report data accurately and in a timely manner.



	<u>The right to effective intervention</u>		
K.14	You know that every individual has the right to the same effective <b>intervention</b> regardless of age; gender; sexuality; religion; culture; ethnicity, socio-economic status or ability.		
K.15	You know that everyone has the right to an individualised intervention based on behavioural assessment as defined by the programme consultant.		
	<u>Permission</u>		
K.16	You know that across settings (home, school and workplace) permission or consent needs to be obtained in respect of specified activities e.g., Taking a child or young person off the premises; videoing or photographing vulnerable individuals or their peers; use of web-based images.	D.13	You seek appropriate permission (from parents/a person with parental responsibility/school officials) to take an individual out of the primary setting and obtain any necessary insurance.
		D.14	You seek appropriate permission for any activity that requires consent from parent/a person with parental responsibility and or child or young person where appropriate.
K.17	You know that this may include the consent of an individual considered Mental Capacity Act competent or their representative where not. Where children (under 18) are involved, parental (or a person with parental responsibility) consent is required.		
	<u>Confidentiality</u>		
K.18	You know the importance of, and legal obligations in terms of maintaining confidentiality in respect of those with whom you work; their families; and of colleagues.	D.15	You do not discuss an individual's programme, progress or any personal information relating to him or her outside of working sessions; or with any other professionals without his or her permission or that of their family.
K.19	You know the importance of maintaining confidentiality in creating, storing, accessing, transferring and disposing of any records whatever medium they are in.	D.16	You keep records in a secure place and only share them with the child or young person and their parent or person with parental responsibility and those directly working on the same programme.
K.20	You know that the Data Protection Act can be a tool to enable and encourage appropriate information sharing, but that subject identifiable data is protected by law.		



P.2	Working with Stakeholders		
	Knowledge		Demonstrable Behaviours
K.21	You know that entering into personal relationships with those with whom you work compromises your professional relationship and may also be illegal.		
K.22	You know the importance of respecting the views of carers and families; but that any carer requests outside of the specified programme should be discussed with your supervisor.	D.17	You refer to your supervisor any requests made by carers that are not in accordance with the specified programme or may be unethical or may give rise to safe guarding concerns (e.g., use of punishment).
K.23	You know the importance of respecting the views of other professionals; but that any other professionals' requests should be incorporated into the programme only after discussion with your supervisor.		
K.24	You know that when working across settings, including the home, the Code of Practice and Conduct in your workplace setting is equally applicable.		

Autism

A.1	Theories on causation & diagnosis		
	Knowledge		Demonstrable Behaviours
K.1	You know that autism is generally described as a life-long neurological disposition that is currently estimated to affect approximately 1% of the population.		
K.2	You know that the causes of autism are as yet unknown but that contemporary scientific consensus is that there is a strong genetic component (involving multiple genes) coupled with still-to-be understood environmental components which can lead to the condition.		
K.3	You know that research suggests that there are neurological differences in individuals with autism.		
K.4	You know that even though autism includes a biological component, it is diagnosed in terms of behavioural manifestations.		
K.5	You know that the defining behaviours of autism for diagnostic purposes are outlined in the Diagnostic and Statistical Manual of Mental Disorders DSM-IV (an updated version, DSM –V is due to be published in May 2013) and other similar diagnostic systems such as the World Health Organisation International Classification of Diseases.		
K.6	You know that the behaviours associated with autism normally manifest themselves within the first three years of life but that it is often not identified and diagnosed until later.		
K.7	You know that a diagnosis of autism will not predict how an individual develops.	D.1	You do not allow a diagnosis of autism to limit your ambitions for any individual or their ambitions for themselves.
K.8	You know that there is currently no medical test that can confirm a diagnosis of autism.		

A.2	Key features of Autism Spectrum Disorder (ASD)		
	Knowledge		Demonstrable Behaviours
K.9	You know that statistics suggest that autism affects more boys than girls in the approximate ratio of 4:1 but that current diagnostic criteria and practice may be underestimating the number of girls affected.		
K.10	You know that autism is described as a spectrum condition, which means that it can vary from “mild” to “severe” and that the way in which it is manifested in each individual is different.	D.2	You take time to get to know each person you work with as an individual, and do not assume anything in particular due to their autism.
K.11	You know that the current view is that there are sub-types of autism, the best known of which is Asperger’s Syndrome, but that even within these there will be huge variation.		
K.12	You know that a diagnosis of autism is not based on an individual’s intellectual abilities.	D.3	You never pre-judge a person’s abilities.
K.13	You know that when autism is “severe” an individual may nonetheless have strengths in some areas; likewise someone with “mild” autism may have difficulties in certain areas. This is sometimes described as a “spiky” or “uneven” profile.	D.4	You identify both the strengths of an individual and areas for development.
K.14	You know that what an individual with autism appears to be able to do may even change on a day to day basis (sometimes within the same day) or across contexts.	D.5 D.6	You identify the strengths of every person you work with by seeing them in different settings and at different times of the day.  You use an individual’s strengths to assist learning in more difficult areas.
K.15	You know that a common misconception about autism is that most individuals have exceptional talents in certain areas (e.g. mathematics or remarkable feats of memory). While some people with autism		

	do have these strengths, these are not usually of such an extreme nature.		
K.16	<p>You know that common difficulties described by people with autism and parents of children with autism include:</p> <ul style="list-style-type: none"> <li>• Communication</li> <li>• Sensory issues</li> <li>• Understanding others' perspective</li> <li>• Single focus/fixations</li> <li>• Anxiety</li> </ul>		
K.17	<p>You know that there are several other difficulties that many people with autism may also experience including epilepsy, severe learning difficulties (i.e., an associated "intellectual disability"), dyspraxia, problems with overactivity and inattention, and gastrointestinal and other problems, some of which can cause undisclosed pain.</p>	D.7	<p>You check whether distressed behaviours are caused by undisclosed pain.</p>
K.18	<p>You know that many individuals with autism express extreme difficulties coping with life and may experience diagnosed mental health problems such as depression and general anxiety disorder.</p>		
K.19	<p>You know that despite the difficulties that individuals with autism describe, they are first and foremost people: with likes, dislikes and feelings.</p>	D.8	<p>You get to know the person first – and then work on target skills using the strengths and interests you have noted.</p>



		D.16	You repeat (if appropriate) the instruction/information word for word without changing anything.
		D.17	You give individuals time to think about what you have said– you are patient.
K.25	You know that if an instruction is given to a group, a person with autism will not always understand that they are included in this.	D.18	You identify the level of understanding of the individual in a group setting and present your instructions accordingly.
K.26	You know that if an individual does do what other group members are doing it does not mean that they have understood – they may just be imitating peer behaviour.	D.19	You do not make assumptions that an individual with autism has understood a group instruction and, where appropriate, use an individual's name to ensure their attention making sure that it is their preferred name.
K.27	You know that much behaviour can be understood as a form of communication (i.e., behaviour typically happens for a reason). It may tell you, even if someone with autism is unable to express in words, how they perceive what is happening around them (although this may not be a “conscious” attempt to communicate).	D.20	You seek to understand the purpose that a particular behaviour serves through observation and appropriate data collection.
K.28	You know that it is important not to merely interrupt behaviours but instead that teaching alternative functional behaviours that facilitate communication, or other functions important to the person with autism, is more helpful.		
K.29	You know that performance is a function of ability, motivation and compliance and can vary across time and contexts.	D.21	You do not assume that inconsistency in performance is always attributable to a lack of motivation or non-compliance.
	<u>Understanding the perspective of others</u>		
K.30	You know that individuals with autism can appear to be self-focused and that this can lead to difficulties with shared attention, perspective taking, turn taking and following the accepted social rules of their culture.	D.22	You give individuals opportunities to recognise and understand the emotions of others including their expression and cause (watching videos together, role play etc.).



K.31	You know that identifying, understanding and communicating their own emotions is a key difficulty for many individuals with autism.	D.23	You provide accessible means to allow an individual to identify and communicate his or her emotive state on regular occasions and use this information when planning and in decision making.
K.32	You know that a related difficulty is the ability to identify and understand the emotions, intent and responses of others.	D.24	You help and encourage individuals to look towards you when you are talking to them, when it is appropriate to do so.
K.33	You know that if a person is not looking at you when you are talking it may be because they find eye contact difficult, or may not realize that eye contact is expected.	D.25	You teach functional eye contact appropriate to the individual's communication abilities and needs, but do not assume that it is always necessary, and do not assume that actual eye contact is needed – sometimes looking towards a person's eyes is appropriate.
	<u>Single focus/fixations</u>		
K.34	You know that individuals with autism may focus on one aspect of their environment or a salient aspect of particular stimuli to the exclusion of other aspects.		
K.35	You know that this may impact on the learning that takes place and that teaching needs to be adapted accordingly.		
K.36	You know that an individual may learn better if you show them rather than tell them; even better if they do the task whilst you provide the support.	D.26	You use prompting and modelling to support instructions.
K.37	You know that if an individual learns something in one situation or environment it does not always transfer to another situation.		
K.38	You know that on the other hand individuals can learn from their own experiences and exploration and that	D.27	You offer opportunities for self-directed learning and exploration and reinforce appropriate responses.

	opportunity for self-directed learning should be offered and encouraged.		
K.39	You know that single focus can also manifest itself as “fixations” such as ordering the environment, needing to complete tasks, a focus on certain subjects.		
K.40	You know that fixations can serve many functions: some can be a calming strategy, some can indicate distress, some can serve a sensory function, and some can lead to useful and empowering skills and knowledge.		
K.41	You know that some fixations can motivate learning and social engagement and be a good thing, but that others may interfere with learning or may be a barrier to involvement in social activities.	D.28	You recognise when a fixation may be a barrier to learning or social activity and when it is an expression of preference that is not impeding an individual’s learning or access to social activity and include this in any discussion on interventions.
K.42	You know that if you intervene on a fixation you need to replace it with something that serves the same function.	D.29	You re-direct, ignore, or build upon a fixation according to the function it serves and the strengths/barriers it presents.
K.43	You know that if you restrict a fixation it may increase the motivation to do it.		
	<u>Sensory Issues</u>		
K.44	You know that self-report, and also research using other methods, is increasingly showing that the sensory perception of people with autism can be atypical and that this can include both over- and under-sensitivity to stimuli.	D.30	You seek to understand any sensory issues that an individual might have and, where appropriate: <ul style="list-style-type: none"> <li>• take advantage of those that might be motivating for learning</li> <li>• use strategies to increase tolerance</li> <li>• mitigate them by adapting the environment</li> </ul>
K.45	You know that sensory issues may need to be taken into account when looking at behaviour.		

K.46	You know that some individuals with autism tell us that this sensitivity is such that an individual may react to stimuli that you are not even aware of (e.g., a sound at a certain pitch).		
K.47	You know that sensory issues are unique to each person – with variety within each sense (i.e. an individual may be both over and under sensitive to sound) and that the steps to address them can be very different.	D.31	You familiarise yourself with all of the strategies that have been shown to work for an individual with sensory issues – but do not assume that what has worked in the past will always be a solution.
K.48	You know that observation and self-report suggests some people find busy situations aversive and that it helps if there is a quiet place that they can go to.	D.32	You give individuals the time and opportunity to go to quiet places when appropriate.
K.49	You know that someone with autism may need more personal space than others within a group setting.		
K.50	You know that settings that others may find relaxing (e.g., playground) may be problematic for an individual with autism.	D.33	You support an individual with any (or all) of the following strategies: <ul style="list-style-type: none"> <li>• offer opportunities for more structured play or other activities according to an individual’s preferences and interests</li> <li>• teach coping strategies when appropriate</li> <li>• help an individual learn to enjoy these settings</li> </ul>
	<u>Anxiety and other emotional responses</u>		
K.51	You know that some individuals report that the extent and nature of their difficulties and lack of understanding of and from the world around them leads to high levels of anxiety	D.34 D.35	You help individuals understand what is going to happen throughout the day with a clear structure and lots of detail.

			You recognise the “triggers” or events that can lead to an individual becoming anxious and try to understand the reasons for anxiety from their point of view.
K.52	You know that some of the difficulties faced by individuals with autism may arise from living in a society which does not accommodate difference and, in particular, autism.		
K.53	You know that times of transition can be particularly challenging. This includes the move from one activity to another on a day to day basis as well as major transitions such as a change of school.	D.36	You build unpredictability into your schedules to help individuals learn that it need not be aversive, and can even be fun if something unexpected happens.
K.54	You know that routines can be important for some individuals and that sudden change to routine can be upsetting.		
K.55	You know that some individuals report self-managing their anxiety and other emotional responses with routines or self-stimulatory behaviour.	D.37	You do not interrupt or discourage self management techniques including routines and self-stimulatory behaviours that serve to calm individuals (unless they present a barrier to learning/social interaction, or are potentially harmful).

A.4	Current interventions and strategies for supporting someone with Autism		
	Knowledge		Demonstrable Behaviours
K.56	You know that some people hope for a “cure” for autism but that, to date, none is available, although this does not mean that an individual with autism, with the right support, cannot make significant improvements across many domains.		
K.57	You know that others argue that seeking a cure is in any case inappropriate because autism is not an “illness” and is also a valid way of being.		
K.58	You know that lifelong education is critical to maximise the potential for all individuals with autism.	D.38	You continue to teach individuals with autism new skills, and promote their learning, throughout the whole of their lives.
K.59	You know that the key areas for assessment and subsequent intervention are communication, social and emotional understanding, understanding routines and conventions, self care and independence skills and learning styles.	D.39	You note an individual’s strengths and interests so that you can use these to spontaneously foster communication and social and emotional understanding.
K.60	You know that there are a vast number of approaches or interventions for autism, that there is no firm research evidence for the efficacy of many of these, but that there is strong evidence for the effectiveness of interventions based on Applied Behaviour Analysis.		
K.61	You know that many interventions in the field of autism that are considered to be evidence based include behavioural components.		
K.62	You know that there is international consensus that the earlier intervention starts, the better the likely outcomes, as long as that intervention is tailored to the child’s needs (but that it is never too late to start).		

K.63	You know that the key questions about an intervention should include questions as to its rationale, aims and practice, likely outcomes and the evidence of its effects.		
K.64	<p>You know that the key components of a successful intervention are likely to include:</p> <ul style="list-style-type: none"> <li>• Person-centred and focus on what is motivating to the individual</li> <li>• Evidence –based</li> <li>• Monitored through careful data collection</li> <li>• Focused on developing the individual’s ability to communicate and interact within the community</li> <li>• Offer individual teaching opportunities</li> <li>• Offer lifelong teaching and learning opportunities</li> <li>• Plan for generalisation</li> <li>• Include peer interactions</li> <li>• Seek to understand the function of challenging behaviour</li> <li>• Consistent</li> </ul>	<p>D.40</p> <p>D.41</p> <p>D.42</p>	<p>You use communication tools effectively to find ways of obtaining the views of individuals with autism as well as those of their parents or carers in any discussions regarding assessment and intervention.</p> <p>You seek naturalistic and varied settings as well as providing everyday consistency.</p> <p>You use assessment tools and other data collection methods to monitor an individual’s progress and judge the effectiveness of every intervention you use.</p>
K.65	You know that it is important, regardless of the approach used, to involve the person with autism and the key people in their lives, including family members, in assessment and intervention plans.	D.43	You listen to and support parents and carers in a non-judgemental way and make use of the information they provide to inform potential interventions, where possible along with the views of the individual with autism.
K.66	You know that access to information technology (including augmentative and alternative communication (AAC) systems) can increase the independence and capacity of individuals with autism and, potentially, their chances of securing meaningful work.	D.44	You use technology (including AAC) to increase the independence and capacity to communicate of the individuals you work with where necessary/appropriate.

A.5	Implications of autism		
	Knowledge		Demonstrable Behaviours
K.67	You know that the nature of autism is such that living with a person with autism can be stressful for parents, other carers and siblings.	D.45	You work with parents and carers to identify strategies to help them with potentially difficult situations in all environments.
K.68	You know that parents, siblings and carers may experience difficulties in public when supporting someone with autism because of public reactions.		
K.69	You know that studies suggest that many individuals with autism are likely to be dependent upon others to support them in some or all aspects of their lives.		
K.70	You know that a small proportion of adults with autism are currently in employment (perhaps less than 6% of individuals with autism in fulltime work and only about 3% have gainful employment).		
K.71	You know that a lack of participation in the workforce is not entirely based on individuals' abilities but because of a lack of opportunity, societal understanding and other inequalities which campaigners are trying to address.		

Education (England)

E.1 Education Framework			
	Knowledge		Demonstrable Behaviours
	<u>Regulatory Framework</u>		
K.1	You know that the structure and policies of education in England are overseen by the Department of Education.		
K.2	You know that the Office for Standards in Education, Children’s Services and Skills (OFSTED) regulates and inspects education service providers to achieve excellence in the care of children and young people and in education and skills for learners of all ages.		
	<u>Good practice guidelines</u>		
K.3	You know that the current infrastructure of education provision in England is underpinned by Every Child Matters (ECM): a shared programme of change to improve outcomes for all children.	D.1	You actively contribute to team discussions concerning team practice and individual outcomes showing knowledge of good practice.
K.4	You know that the five ECM outcomes are: Be healthy; stay safe; enjoy and achieve; make a positive contribution; achieve economic well being.	D.2	You identify activities that support the outcomes of ECM and apply them in daily working practice.
K.5	You know that the Common Core of Skills and Knowledge for the Children’s workforce sets out the required knowledge and skills to practice at a basic level in six areas of competence: Effective communication; Child and young person development; Safeguarding and promoting the welfare of the child; supporting transitions; Multi-agency working; Sharing information.		



	<u>Special Educational Needs</u>		
K.6	You know that the Common Assessment Framework for Children is a nationally standardised approach to help practitioners in any agency decide how to meet the unmet needs of a child.	D.3	You provide relevant input to children’s assessments when asked, providing information in a timely and accurate manner.
K.7	You know that the SEN Code of Practice sets out guidelines and roles on policies and procedures aimed at enabling children with special education needs to reach their full potential, to be included fully in their school communities and make a successful transition to adulthood.		
K.8	You know that a Statement of Education Needs (a Statement) is a legal document, reviewed annually (Annual Review), which sets out a child’s needs and describes how those needs will be met.		
K.9	You know that a statement is only a snapshot of a child at that particular time and that the needs outlined might change.		
K.10	You know that every child has an Individual Education Plan (IEP) that includes targets to address the needs outlined in the Statement.	D.4	You have read the IEP for each child with whom you closely work.
K.11	You know that a child’s IEP is often limited to those needs outlined in the Statement but that many children will be working on additional targets: every individualised curriculum will include the IEP as well as additional targets.	D.5	You incorporate each child’s targets into your activities as you work with them.
K.12	You know that an Annual Review is a yearly check that the effectiveness and relevance of the provision set out in a Statement is still relevant and that each annual review follows a set process with written submissions from all relevant professionals.	D.6	You contribute to a child’s annual review when necessary, providing accurate and relevant information.

K.13	<p>You know that it is good practice for parents to be involved at all stages in this process and that they currently have the right to appeal to a Special Education Needs and Disability Tribunal (SENDIST) if the Local Authority will not carry out an assessment of a child’s needs; refuses to make a statement after an assessment has been carried out; or if they do not agree with the content of the statement that has been issued.</p>		
K.14	<p>You know that there is currently a formal process of appeal with strict guidelines that need to be adhered to.</p>		
	<p><u>Education Otherwise</u></p>		
K.15	<p>You know that whilst school is not compulsory in England, education is.</p>	D.7	<p>You adhere to and meet the standards set out by Education Otherwise when working on home programmes.</p>
K.16	<p>You know that Education Otherwise is the education of school age children in locations other than schools, including arrangements for the education of children at home.</p>		
K.17	<p>You know that for such arrangements to be deemed satisfactory by the local authority there are strict standards to be met.</p>		
K.18	<p>You know that the local authority may assess a home programme to ensure that it meets those standards.</p>		

E. 2	Teaching and Learning		
	Knowledge		Demonstrable Behaviours
	<p><u>Understanding curricula</u></p> <p>K.19 You know that a curriculum comprises all learning and other experiences that each setting plans for its children to develop socially, morally, culturally, physically and mentally and are prepared for the opportunities and experiences of adult life.</p> <p>K.20 You know that if you work with children under 5, the Early Years Foundation Stage sets out the learning and development requirements that all early providers must, by law, deliver regardless of the type, size, or funding of the setting.</p> <p>K.21 You know that all children aged 5 – 16 have an entitlement to access the National Curriculum, as part of their overall curriculum.</p> <p>K.22 You know that the National Curriculum sets out the knowledge and skills that are important for children to become successful learners, confident individuals and responsible citizens.</p> <p>K.23 You know that, in addition, an individual curriculum should be differentiated to provide relevant and challenging learning to all children. It should follow the three principles set out in the Statutory Inclusion Statement:</p> <ul style="list-style-type: none"> <li>• Setting suitable learning challenges</li> <li>• Responding to children’s diverse learning needs</li> <li>• Overcoming potential barriers to learning and assessment for individuals and groups of children.</li> </ul> <p>K.24 You know that each child’s curriculum is individualised and is appropriate to his or her age, level of development and understanding.</p>	<p>D.8</p> <p>D.9</p> <p>D.10</p>	<p>You demonstrate high expectations of children through a commitment to the delivery of appropriately challenging programmes.</p> <p>You maximise all opportunities for learning across the day both when working with individuals and with small groups.</p> <p>You support learners in accessing the curriculum (including suitably accredited courses) in accordance with the child’s, age level of development and understanding.</p>

<p>K.25</p>	<p>You know that the core subjects of the National Curriculum are: Maths, English, Science, Religious Education, ICT, PSHE including sex and relationship education, careers education and PE.</p> <p><u>Planning and preparation of learning activities</u></p>		
<p>K.26</p>	<p>You know that planning and preparation have a direct impact on outcomes.</p>	<p>D.11</p>	<p>You identify the type of learning experiences that are covered by activities across the day in your setting.</p>
		<p>D.12</p>	<p>You contribute to the planning and preparation of learning activities for both individual and group sessions.</p>
		<p>D.13</p>	<p>You devise clearly structured activities that interest and motivate learners and contribute to the selection and preparation of resources suitable for children's interests and abilities.</p>
<p>K.27</p>	<p>You know that inclusion means that all children regardless of their strengths or weaknesses in any area, become a part of their community and have appropriate access to activities.</p> <p><u>Inclusion</u></p>	<p>D.14</p>	<p>You facilitate appropriate inclusion by arranging equal access/opportunities to participate for all children within group instruction.</p>
	<p><u>Helping children to develop their literacy skills</u></p>		
<p>K.28</p>	<p>You know that teaching children to read and write may involve a range of evidence based methods.</p>		
<p>K.29</p>	<p>You know that the methods used to teach children to read and write will depend on their learning needs and that it is important to be able to support children through progressive stages.</p>	<p>D.15</p>	<p>You use an appropriate strategy to support the development of a child's reading and writing according to his or her curriculum.</p>
		<p>D.16</p>	<p>You model correct pencil grip.</p>
		<p>D.17</p>	<p>You model the formation of letters and numerals accurately.</p>

K.30	<p><u>Helping children to develop their maths skills</u></p> <p>You know that teaching the principles and applications of maths may involve a range of evidence based methods.</p>		
K.31	<p>You know that the methods used to teach children the principles and applications of maths will depend on their learning needs and that it is important to be able to support children through progressive stages.</p>	D.18	<p>You use an appropriate strategy to support the development of a child's maths skills according to his or her curriculum.</p>
K.32	<p><u>Understanding and use of ICT</u></p> <p>You know that there are a number of ICT applications (hardware and software) that can be used to support children's learning.</p>	D.19	<p>You make effective use of ICT to support learning in your setting.</p>
K.33	<p><u>PSHE</u></p> <p>You know the central importance of developing skills in PSHE, including sex and relationship education to enable a child to lead as independent and social a life as possible within his or her community.</p>	D.20	<p>You use the PSHE curriculum, as required, to promote the development of skills that foster independence.</p>

E. 3	Monitoring and Assessment		
	Knowledge		Demonstrable Behaviours
K.34	<p><u>Assessment for Learning</u></p> <p>You know that if you work in school settings monitoring and assessment includes both formative and summative assessments – that the former is used for on-going evaluation and planning and the latter is conducted at specified points in the school year.</p>	D.21	You contribute to maintaining and analysing records of children’s progress.
K.35	You know that where appropriate it is also important for a child to take part in their own assessment and have an understanding of their targets.	D.22	You report and record information formally and informally in the appropriate way for the audience concerned, using the assessment tools in your setting.
K.35		D.23	You monitor learners’ responses within an activity and modify the approach accordingly, within the parameters of the child’s programme.
K.35		D.24	You monitor learners’ progress to provide focused support and feedback.
K.35		D.25	You strive to involve the child in assessment
K.35		D.26	You communicate the results of assessment to the child in an appropriate format
K.36	<p><u>Assessment tools</u></p> <p>You know that where it is a statutory requirement, children’s progress is assessed against the national curriculum and that there are tools to achieve this (e.g., B-squared, PIVATs).</p>	D.27	You contribute to an evaluation of a child’s progress against national curriculum levels (including P-Levels) if required using the assessment tools in your setting (e.g. B-squared, PIVATs).
K.37	You know that there are, in addition, assessment tools related to specific areas of development and learning (e.g., those used to assess language and general cognitive ability).	D.28	You contribute to an evaluation of a child’s progress against the additional assessment tools within your setting.

E. 4	Effective communication and engagement		
	Knowledge		Demonstrable Behaviours
K.38	You know the importance of communication – that it must be timely, accurate, consistent, shared where appropriate, and relevant.	D.29	You hold conversations at the appropriate time and place, understanding the value of day to day contact.
K.39	You know the role and value of families and carers as partners in supporting their children to achieve positive outcomes.	D.30	You establish rapport and respectful, trusting relationships with children, their families and carers.
		D.31	You listen to people, make them feel valued and involved, and know when it is important to focus on the individual rather than the group.
		D.32	You are open and honest when giving feedback to parents and carers.
K.40	You know that there are different means of communication, including electronic means, and that using different means can distort meaning.	D.33	You listen carefully to what is said and check understanding.
K.41	You know that inference or interpretation can result in a difference between what is said and what is understood.	D.34	You recognise when the child, parent or carer may not have understood what is being communicated.
		D.35	You are prepared to ask questions to seek clarification when necessary.
K.42	You know the importance of ensuring that what has been communicated has been understood and the importance of checking that <i>you</i> have understood what has been said.	D.36	You use clear language that is both positive and professional to communicate unambiguously to others.
		D.37	You demonstrate a commitment to treating all people fairly; and are respectful by using active listening and avoiding assumptions.
K.43	You know that some children have difficulties communicating vocally and that there are a number of augmentative alternative communication systems (AAC)	D.38	You use AAC appropriately and effectively when relevant to support a child’s communication according to the child’s IEP.

	(e.g., signing, picture-based, VOCA systems).		
K.44	You know the impact of non-verbal communication such as body language, and appreciate that different cultures use and interpret body language in different ways.	D.39	You make effective use of your own body language appropriate to any situation.
K.45	You know the importance of facilitating daily communication between parents and children, supporting that if necessary.	D.40	You maximise opportunities for children and young people to communicate with their parents and vice versa (e.g., through the use of a communication book).
K.46	You know the importance of communication in terms of knowledge transfer and that this can be on a day to day and informal basis as well as through formal channels of communication set up for reporting and feedback purposes.	D.41	You pass on relevant information in a timely and accurate manner to all concerned.



E. 5	Child development		
	Knowledge		Demonstrable Behaviours
K.47	You know that if you work with children under 5, the “Practice Guidance for the Early Years Foundation Stage” sets out standards for Learning, Development and Care for children from birth to 5.	D.42	You have visited a number of settings with typically developing children and have had experience with typically developing children.
K.48	You know that there are many factors that can affect children’s learning and progress including their physical and emotional development; socio-economic status; religion; ethnicity and culture.	D.43	You observe a child’s behaviour, understand its context, and notice any unexpected changes.
		D.44	You support a child to reach his or her own decisions (while taking into account health and safety and child protection issues).
K.49	You know that individual children’s learning is motivated by different things (children have individual preferences).		
K.50	You know that children’s learning is affected by their “stage” of development.	D.45	You encourage a child to value his or her own personal experiences and knowledge.
K.51	You know that, typically, young children learn through play and recreation.	D.46	You interact with children in ways that support the development of their ability to think and learn.
K.52	You know that development includes emotional, physical, intellectual and social growth, and that they can all affect one another.		
K.53	You know that for some children delayed or disordered development may stem from an underlying, potentially undiagnosed, disability.	D.47	You take action/refer to others where you feel that further support is needed.
K.54	You know and recognise the significance of a child’s position in a family or caring network as well as a wider social context and appreciate the diversity of those networks.	D.48	You take account of the effects of different parenting approaches, backgrounds and routines.

E.6	Safeguarding and promoting the welfare of the child		
	Knowledge		Demonstrable Behaviours
K.55	You know that you have a full and active part to play in protecting children from harm and that their welfare is of paramount concern.	D.49	You make considered judgements about how to act to safeguard and promote a child's welfare, where appropriate consulting with the child, parent or carer to inform your thinking.
K.56	You know that it is the right of all children and young people to be safe.	D.50	You organise and manage learning activities in ways which keep children safe.
		D.51	You give the child the opportunity to participate in decisions affecting them, as appropriate to their age and ability and taking their wishes and feelings into account.
K.57	You know the safeguarding policy and procedures of your organisation (if you work for one) and who the designated child protection officer is.	D.52	You recognise when a child is in danger or at risk of harm, and take action to protect them.
K.58	You know what is meant by safeguarding and the different ways in which children can be harmed (including by other children and through the internet).	D.53	You record concerns in an accurate and timely manner according to your organisation's procedures, or, in the case of home provision, with your programme supervisor.
		D.54	You maintain confidentiality in all matters relating to safeguarding and promoting the welfare of children.
K.59	You know that parents and carers play a key role in safeguarding and promoting children and young people's welfare and involve them accordingly.	D.55	You take steps to ensure that you do not place yourself in a vulnerable position with children.
K.60	You know the factors that can affect parenting and increase the risk of abuse (e.g., domestic violence, poverty, substance addiction).		
K.61	You know that signs of abuse can be subtle and may be observed in the context of a child's work or play and in the		

	way children approach relationships with other children and/or adults.		
K.62	You know that children with Special Educational Needs may be more vulnerable than other children.		
K.63	You know that the Department of Education publication “What to do if you’re worried a child is being abused” sets out guidelines under Every Child Matters.		
K.64	You know the emergency procedures within your setting for each child or young person that you work with.	D.56	You follow the emergency procedures within your setting appropriately and effectively.
K.65	You know that there are clear guidelines in respect of intimate care and are familiar with those within your setting.	D.57	You respect the privacy and maintain the dignity of the children with whom you work.

E.7	Supporting transitions		
	Knowledge		Demonstrable Behaviours
K.66	You know that key transitions and other significant life events such as divorce, bereavement, family break-up, puberty, move from primary to secondary school, from school to school, unemployment and leaving home or care can all affect a child.	D.58	You participate in the process of transition in a timely way and help the child reach a positive outcome.
		D.59	You listen to concerns, recognise, and take account of signs of change in attitudes and behaviour.
K.67	You know that children with disabilities or special educational needs may need additional support to manage transitions, and know when to seek specialist advice and support.	D.60	You understand your own role and its limits, the importance of providing care or support, and the need to refer when necessary.
		D.61	You reassure children and those caring for them by explaining what is happening and by exploring and examining, with the team, possible actions to deal with new and challenging situations.
		D.62	You participate in opportunities to discuss the effects and results of transition.
K.68	You know that transitions can be daily and include the movement from one activity to another.	D.63	You provide relevant information relating to the facts surrounding transition.
K.69		D.64	You ensure that information transfers ahead of the child, when appropriate, and respect other professionals when sharing information.

E.8	Multi-agency working		
	Knowledge		Demonstrable Behaviours
K.70	<p>You know the roles and responsibilities of other professionals working within your setting including (but not exclusively) the roles of:</p> <ul style="list-style-type: none"> <li>• Behaviour Analysts</li> <li>• Speech and Language Therapists</li> <li>• Occupational Therapists</li> <li>• Teachers</li> <li>• SENCOs</li> <li>• Educational Psychologists</li> </ul>	<p>D.65</p> <p>D.66</p> <p>D.67</p> <p>D.68</p>	<p>You provide timely, appropriate, succinct information to enable other practitioners to deliver their support to the child, parent or carer.</p> <p>You work in a team context, forging and sustaining relationships across agencies.</p> <p>You deliver agreed strategies based on recommendations made by other professionals within your setting.</p> <p>You communicate effectively with other practitioners and professionals by describing what you do without the use of professional jargon.</p>
K.71	<p>You know the importance of actively learning from others as part of your professional development.</p>		
K.72	<p>You know the partner services that are also involved with the children with whom you work.</p>		

E. 9	Sharing information		
	Knowledge		Demonstrable Behaviours
K.73	You know the importance of sharing information (distinguishing between fact and opinion) and the factors that need to be considered: timeliness, accuracy, necessity, nature, source and confidentiality.	D.69	You make good use of available information sharing with others when appropriate.
		D.70	You bring together relevant information about the children with whom you work in a timely and accurate manner.
K.74	You know who to share information with and when, understanding the difference between information sharing on individual, organisational and professional levels.	D.71	You encourage children and their families to share information where appropriate, ensuring that they understand why it is important to do so.
K.75	You know the principles governing when children are considered sufficiently mature to give consent to any interventions, or to their information being shared.		
K.76	You understand, when working in secondary or further education settings, the issues of consent for adults (anyone over the age of 18) who are not Mental Capacity Act competent.		
K.77	You know the policies and procedures in respect of confidentiality of your own work place and role within the organisation or with your employer.	D.72	You record, share, use, store and dispose of information in accordance with your organisation's/employer's policies and procedures, or in the absence of those, in accordance with the law.

## GLOSSARY

### Behaviour Analyst:

Behaviour Analysts work to achieve positive behaviour change for individuals, groups of people, and for organizations and society as a whole. Behaviour analysts might be involved in helping to make a positive difference to behaviour change in any context in healthcare, public health, social care, education, or business. Behaviour analysts work with people to help achieve behaviour change by using ABA-based intervention approaches.

### B-Squared

B Squared is a commercial organisation that produces assessment tools that map onto the curriculum for P Levels, National Curriculum, Foundation and the Pre Entry Level Adult Curriculum.

(<http://www.bsquared.co.uk>)

### Child and Children and Young People:

For the purposes of the framework the definition of “child” is the legal definition of someone under and up to the age of 18. See “Learner” (below).

Every Child Matters defines Children and Young People in England as: Someone up to the age of 19, care leavers up to the age of 21 or beyond if they are continuing to be helped with education or training by their Local Authority or up to 25 if they have learning difficulties or disabilities.

### Curriculum:

A curriculum comprises all learning and other experiences that each setting plans for its children to develop socially, morally, culturally, physically and mentally and are prepared for the opportunities and experiences of adult life. (ABA Competencies project writing group)

**Direct Instruction:**

Direct Instruction (DI) is a model for teaching that emphasizes well-developed and carefully planned lessons designed around small learning increments and clearly defined and prescribed teaching tasks. It is based on the theory that clear instruction eliminating misinterpretations can greatly improve and accelerate learning. (<http://www.nifdi.org>)

**Educational Psychologist:**

An Educational Psychologist addresses the problems encountered by children in Education which may involve learning difficulties and social or emotional problems. Educational Psychologists carry out a wide range of tasks with the aim of enhancing children's learning and enabling teachers to become more aware of the social factors affecting teaching and learning. (ABA Competencies project writing group)

**Functional Communication Training:**

An antecedent intervention in which an appropriate communicative behaviour is taught as a replacement behaviour for problem behaviour. (Based on Copper et al, 2007)

**Intervention:**

For the purpose of the framework an intervention is the precise description of tactics in place to increase or decrease a specific behaviour for an individual, including a description of that behaviour. (ABA Competencies project writing group)

**Learner:**

For the purposes of the framework the term "learner" is defined as any person engaged in learning a behaviour. (ABA Competencies project writing group)



**Occupational Therapists (OTs):**

OTs promote health and well-being by enabling people to perform and participate in meaningful and purposeful occupations. These include (but are not limited to) schoolwork/work, play/leisure, self care, domestic and community activities. The main goal for OT is to help people to engage as independently as possible in the activities (occupations) of everyday life and this is achieved by developing the essential prerequisite skills (motor, sensory, cognitive and psychosocial skills), adapting the activity and/or modifying the environment. (ABA Competencies project Allied Health Professionals writing group)

**Picture Exchange Communication System (PECS):**

Developed by a Behaviour Analyst and Speech and Language Therapist PECS is a form of augmentative and alternative communication. It is typically used as an aid in communication for children with autism and other special needs. Learners are taught to exchange single pictures for items or activities they really want. (<http://www.pecs.org.uk>)

**PIVATs**

PIVATS is an assessment programme used nationally to measure pupil progress through the 'P' Scales and up to National Curriculum Level 4. As well as its use throughout the UK PIVATS is now being adopted by Local Authorities and District School boards across Canada, Australia, South Africa and other parts of the world. (<http://www.lancashire.gov.uk>)

**Pivotal Response Teaching:**

Pivotal Response Intervention (PRI) is an approach to teaching individuals with autism spectrum disorders (ASD) that involves instruction in areas that, when targeted, result in progress in numerous related areas. PRI is based on applied behaviour analysis including collecting data as a basis for decision-making and strategy implementation. (<http://www.autismnetwork.org>)

**Precision Teaching:**

Precision Teaching is “a method of measuring student performance regularly and frequently and using an analysis of the measurements to suggest instructional and motivational strategies capable of correcting failures to learn. Precision teaching is not as much a method of instruction as it is a precise and systematic method of evaluating instructional tactics and curricula.” (West, Young & Spooner, 1990, p.5)

**Problem behaviour:**

For the purposes of the framework problem behaviour is defined as any behaviour that presents a barrier to a learner in terms of achieving his or her goals including barriers to learning as well as the following:

Behaviour can be described as challenging when it is of such an intensity, frequency or duration as to threaten the quality of life and/or the physical safety of the individual or others and is likely to lead to responses that are restrictive, aversive or result in exclusion. (<http://www.rcpsych.ac.uk>)

**Programme:**

For the purposes of the framework a programme is a detailed outline of all of the behaviours targeted for increase and decrease and the interventions put in place to achieve these. A programme will include a person’s Individual Education Plan (IEP). (ABA Competencies project writing group)

**SENCOs:**

The SEN co-ordinator (SENCO) is appointed within a school and takes day to day responsibility for the operation of SEN policy and co-ordination of the individual provision made for children with SEN working closely with staff,

parents and carers, and other agencies. (ABA Competencies project Allied Health Professionals writing group)

### **Speech and Language Therapists (SALTs):**

SALTs assess speech, language, communication and swallowing difficulties. They plan and monitor intervention that will target:

- Early skills necessary to develop communication, language and speech such as: attention and listening skills, turn taking, initiating
- Non verbal communication e.g. use of gesture, pointing
- Understanding of Language e.g. vocabulary understood, how many words in a sentence are understood versus following other cues
- Expressive Language and a mode and means of communicating, may be assessing for best form of alternative augmentative communication or expanding vocabulary, words to phrases, and communicating to express needs and wants but then taking it further to comment etc
- Speech sounds i.e. pronunciation (articulation) of words
- Social Interaction e.g. ability to initiate communication

(ABA Competencies project Allied Health Professionals writing group)

### **Stakeholders**

All people or organisations with an interest in (in this case) the provision of ABA services including providers, consumers, commissioners, procurers and academics. (ABA Competencies project writing group)

### **Targets**

The response (single instance of a behaviour) selected for intervention. (Based on Copper et al, 2007)

### **Teachers:**

A qualified teacher is someone who has met a core set of professional standards which includes (but is not limited to) demonstrating knowledge and understanding of educational policy, pedagogy, teaching and learning, assessment and monitoring and the National Curriculum. Teachers may also have specialist knowledge in a particular area. (ABA Competencies project Allied Health Professionals writing group)

## REFERENCES

- Baer, D., Wolf, M., & Risley, R. (1968) Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis* 1, 91 -97.
- Behaviour Analyst Certification Board (2005) *Behaviour analyst task list, third edition*. Tallahassee, Fl., Retrieved from <http://www.bacb.com/Downloadfiles/TaskList/207-3rdEd-TaskList.pdf>
- Behaviour Analyst Certification Board (2007) *Task list for Board Certified Behaviour Analysts working with persons with Autism*, Retrieved from <http://www.bacb.com/Downloadfiles/AutismTaskList/708AutismTaskListF.pdf>
- Behaviour Analyst Certification Board (2001) *Guidelines for Responsible Conduct for Behaviour Analyst*. Tallahassee, Fl., Retrieved from <http://www.bacb.com/Downloadfiles/BACBguidelines/1007GuidelinesFpdf>
- Behaviour Analyst Certification Board *Professional Disciplinary and Ethical standards*, Retrieved from <http://www.bacb.com/Downloadfiles/DisciplinaryStandards/DisciplinaryStandards2-2010.pdf>
- Catania, A.C. (1988) *Learning* (4<sup>th</sup>ed) Prentice Hall, NJ.
- Code of Conduct and Practice for Registered Teachers* (2009), retrieved from <http://www.gtce.org.uk>
- Cooper, J.O., Heron, T.E., Heward, W.L. (2007) *Applied Behaviour Analysis*, Pearson Education Inc, New Jersey.
- H M Government (2005) *Common Core of Skills and Knowledge for the Children's Workforce*, Retrieved from <http://www.everychildmatters.gov.uk>

Hughes, J.C., & Shook, G.L. (2007). Training and certification of behaviour analysts in Europe: Past, present, and future challenges. *European Journal of Behaviour Analysis* 8 (2)

Improving Access to Psychological Therapies (IAPT). (2007). *The competencies required to deliver effective cognitive and behavioural therapy for people with depression and anxiety disorders*. Retrieved from [http://www.ucl.ac.uk/clinical psychology/CORE/CBT\\_Framework.htm](http://www.ucl.ac.uk/clinical%20psychology/CORE/CBT_Framework.htm)

Koegel, R.L., Russo, D.C., & Rincover, A. (1977) Assessing and Training Teachers in the Generalized Use of Behavior Modification with Autistic Children, *Journal of Applied Behavior Analysis*, 10, 197-205.

*National Occupational Standards for Psychology*. Retrieved from [http://www.bps.org.uk/professional-development/nos/nos\\_home.cfm](http://www.bps.org.uk/professional-development/nos/nos_home.cfm)

*National Occupational Standards* (various) Retrieved from <http://www.ukstandards.org.uk/>

New York State Education Department. (2001). *Autism programme quality indicators*. Retrieved from <http://www.p12.nysed.gov/specialed/autism/apqi.htm>

Perry, A., Flanagan, M.A., Prichard, E.A.,(2008) *The York Measure of Quality of Intensive Behavioural Intervention*, York University.

*Professional Standards for qualified teacher (QTS) status*. Retrieved from <http://www.tda.gov.uk/training-provider/itt/qts-standards-itt-requirements.aspx>

- Professional Standards for Higher level teaching assistant status*. Retrieved from <http://www.tda.gov.uk/support-staff/developing-progressing/hlta/professional-standards.aspx>
- Royal College of Psychiatrists. (2010). *A Competency Based Curriculum for Specialist Training in Psychiatry*. Retrieved from <http://www.rcpsych.ac.uk/training/curriculum2010.aspx>
- The Speech, Language and Communication Competence Framework (2001)* retrieved from, <http://www.communicationhelppoint.org.uk>
- Shook, G.L., & Favell, J.E., (2008) The Behavior Analyst Certification Board and the Profession of Behavior Analysis, *Behavior Analysis in Practice*. 1(1): 44–48.
- Shook, G. L., Johnston, J. M., & Mellichamp, F.(2004). Determining essential content for applied behavior analyst practitioners. *The Behavior Analyst*, 27(1), 67-94.
- TreeHouse (2005) *October Club ABA Training and Accreditation Project: Report on Consultation and discussion of findings*, Retrieved from <http://groups.yahoo.com/group/ABAstakeholdersUK/>)
- TreeHouse (2007) *Response to discussion Group Feedback ABA Stakeholder Day Monday 21 May 2007*, Retrieved from <http://groups.yahoo.com/group/ABAstakeholdersUK/>)
- Van Houten, R., Axelrod, S., Bailey, J.S., Favell, J.E., Foxx, R.M., Iwata, B.A., Lovaas, O.I. (1988) The Right to Effective Behavioral Treatment, *Journal of Applied Behavior Analysis*, 21, 381-384.

West, R. P., Young, K. R., & Spooner, F. (1990). Precision teaching: An introduction. *Teaching Exceptional Children*, 22(3), 4-9.

West Midlands Regional Partnership. (2006). *Autism spectrum disorders Training policy and framework*. Coventry.



## Contributors

This project has brought together a number of stakeholders from across the ABA community many of whom have given up a considerable amount of their own time to contribute to the framework's development:

### Management & Advisory Groups

Tony Balazs	Independent Consultant & Parent
Brad Bezilla	Senior Behaviour Analyst, Hesley Group
Virginia Bovell	Parent and Co-Founder of TreeHouse School
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## **Appendix C: Ethics approval - Evidence Based Practice and Applied Behaviour Analysis: A competence based approach to service delivery**

-----Original Message-----

From: Bangor Research Applications [mailto:psse09@bangor.ac.uk]

Sent: 23 May 2012 15:40

To: pspc89@bangor.ac.uk

Subject: Ethics Application Approved

Dear Louise Durman,

2011-3881 Evidence Based Practice and Applied Behaviour Analysis: A competence based approach to service delivery

Your research proposal number 2011-3881 has been reviewed by the School of Psychology Ethics and Research Committee and the committee are now able to confirm ethical and governance approval for the above research on the basis described in the application form, protocol and supporting documentation. This approval lasts for a maximum of three years from this date.

Ethical approval is granted for the study as it was explicitly described in the application

If you wish to make any non-trivial modifications to the research project, please submit an amendment form to the committee, and copies of any of the original documents reviewed which have been altered as a result of the amendment. Please also inform the committee immediately if participants experience any unanticipated harm as a result of taking part in your research, or if any adverse reactions are reported in subsequent literature using the same technique elsewhere.

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Governance approval is granted for the study as it was explicitly described in the application and we are happy to confirm that this study is now covered by the University's indemnity policy.

If any new researchers join the study, or any changes are made to the way the study is funded, or changes that alter the risks associated with the study, then please submit an amendment form to the committee.

Yours sincerely

Everil McQuarrie

**Appendix D: Information sheets (Groups A and B): Evidence Based Practice and Applied Behaviour Analysis: A competence based approach to service delivery**

Participant Information Sheet

Evidence Based Practice and Applied Behaviour Analysis:  
A competence based approach to service delivery

You are invited to participate in a piece of research which aims to evaluate the effect of a competence based approach to training on staff performance at TreeHouse School. This is part of a larger research project assessing a competence based approach to service delivery within the field of Applied Behaviour Analysis (ABA).

The hypothesis of the research project is that a competence based approach to training and evaluating staff will result in improved tutor performance, improved tutor awareness of their own level of competence and improved tutor satisfaction.

**Why have I been asked to take part?**

In October 2011, TreeHouse School introduced a competence based approach to tutor training based on the UK ABA Autism Education Competence Framework (The Competence framework). This is a detailed framework of the knowledge and demonstrable behaviours (i.e., things that can be demonstrated to another person) that are important for practitioners in UK education settings working with children and young people with autism using ABA.

You have been asked to take part because you are part of the last cohort of ABA trainees at TreeHouse School to be trained before the introduction of a competence based approach to training.

### What does the study involve?

The study will involve analysing data from the various measures already in place as part of the TreeHouse School Staff performance assessment process. These include a self-assessment form, multiple choice questionnaires/ short answer tests, supervisor assessments of staff competencies and video observations based on the York Measure Quality of Intensive Behavioural Intervention (YMQI)<sup>25</sup>. Data will be collected from two groups of participants: The first group (Group A) includes those ABA tutors who started working at TreeHouse School in July 2010 prior to the development of the Competence Framework and who received the then standard training programme; the second group (Group B) includes ABA tutors who started working at TreeHouse School in July 2011 and whose training has been based on the Competence Framework.

There are a number of research questions that can be analysed:

- The relationship between theoretical and practical competence (the knowledge and demonstrable behaviour strands of the Competence framework).
- The extent to which YMQI scores correlate with Supervisor assessments
- The extent to which self assessment scores correlate with other assessments
- Whether or not a competence based approach to training results in improved performance.

The study does not require you to do anything other than give permission for the data that is routinely collected by TreeHouse School in relation to your staff assessment to be used for research purposes.

### Are there any benefits or risks?

The findings of the study will be used to help us further develop the training and development of our staff at TreeHouse School; but will also help inform the

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<sup>25</sup> The YMQI is an observational tool designed to assess the quality of one to one teaching. It measures characteristics such as reinforcement, prompting, pacing and instructional control.

implementation of evidence based practice and ultimately the professional development of our field.

No risk to participants is anticipated in this study.

What will happen to my data?

Any data that is used will be entirely confidential and you will not be identifiable in any report, thesis or publication, which arises from this study. The data from this study will be stored securely for 7 years. If you choose to withdraw from the study and your data is identifiable to the research team, then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact any other aspect of your employment.

Who do I contact about the study?

The study is supervised by Professor Richard Hastings and Dr J. Carl Hughes of Bangor University and supported by Esther Thomas, MSc student, Bangor University and Senior ABA Consultant at TreeHouse School.

If you have any concerns or complaints about this study or the conduct of the individuals conducting this study, then please contact Mr. Hefin Francis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS.

Louise Denne

Head Ambitious External Training and Consultancy

## Participant Information Sheet

### Evidence Based Practice and Applied Behaviour Analysis: A competence based approach to service delivery

You are invited to participate in a piece of research which aims to evaluate the effect of a competence based approach to training on staff performance at TreeHouse School. This is part of a larger research project assessing a competence based approach to service delivery within the field of Applied Behaviour Analysis (ABA).

The hypothesis of the research project is that a competence based approach to training and evaluating staff will result in improved tutor performance, improved tutor awareness of their own level of competence and improved tutor satisfaction.

#### Why have I been asked to take part?

In October 2011, TreeHouse School introduced a competence based approach to tutor training based on the UK ABA Autism Education Competence Framework (The Competence framework). This is a detailed framework of the knowledge and demonstrable behaviours (i.e., things that can be demonstrated to another person) that are important for practitioners in UK education settings working with children and young people with autism using ABA.

You have been asked to take part because you are part of the first cohort of ABA trainees at TreeHouse School to be trained using a competence based approach.

#### What does the study involve?

The study will involve analysing data from the various measures already in place as part of the TreeHouse School Staff performance assessment process. These include a self assessment form, multiple choice questionnaires/ short answer tests, supervisor assessments of staff competencies and video observations based on the York Measure Quality of Intensive Behavioural Intervention (YMQI)<sup>26</sup>. Data will be

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<sup>26</sup> The YMQI is an observational tool designed to assess the quality of one to one teaching. It measures characteristics such as reinforcement, prompting, pacing and instructional control.



collected from two groups of participants: The first group (Group A) includes those ABA tutors who started working at TreeHouse School in July 2010 prior to the development of the Competence Framework and who received the then standard training programme; the second group (Group B) includes ABA tutors who started working at TreeHouse School in July 2011 and whose training has been based on the Competence Framework.

There are a number of research questions that can be analysed:

- The relationship between theoretical and practical competence (the knowledge and demonstrable behaviour strands of the Competence framework).
- The extent to which YMQL scores correlate with Supervisor assessments
- The extent to which self assessment scores correlate with other assessments
- Whether or not a competence based approach to training results in improved performance.

The study does not require you to do anything other than give permission for the data that is routinely collected by TreeHouse School in relation to your staff assessment to be used for research purposes.

#### Are there any benefits or risks?

The findings of the study will be used to help us further develop the training and development of our staff at TreeHouse School; but will also help inform the implementation of evidence based practice and ultimately the professional development of our field.

No risk to participants is anticipated in this study.

#### What will happen to my data?

Any data that is used will be entirely confidential and you will not be identifiable in any report, thesis or publication, which arises from this study. The data from this study will be stored securely for 7 years. If you choose to withdraw from the study

and your data is identifiable to the research team, the you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact any other aspect of your employment.

Who do I contact about the study?

The study is supervised by Professor Richard Hastings and Dr J.Carl Hughes of Bangor University and supported by Esther Thomas, MSc student, Bangor University and Senior ABA Consultant at TreeHouse School.

If you have any concerns or complaints about this study or the conduct of the individuals conducting this study, then please contact Mr. Hefin Francis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS.

Louise Denne

Head Ambitious External Training and Consultancy

**Appendix E: Consent Form: Evidence Based Practice and Applied Behaviour Analysis: A competence based approach to service delivery**

Title of project: Evidence Based Practice and Applied Behaviour Analysis: A competence based approach to service delivery

Researcher: Louise Denne

Please initial the boxes below:

- 1. I confirm that I have read and understood the information sheet dated ....(version ....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- 2. I understand that my participation is entirely voluntary and that I am free to withdraw that permission at any time without giving reasons and without my employment rights being affected.
- 3. I understand that data routinely collected as part of my staff performance assessment will be used for research purposes and will therefore be reviewed by the researchers taking part in this research. I give permission for these individuals to have access to the data collected in relation to my assessment.
- 4. I understand that any data used for research purposes will be treated in confidence and will be recorded anonymously.
- 5. I agree to participate in the above study.

\_\_\_\_\_  
ABA Tutor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

## Appendix F: UK ABA Autism Education Competence framework Self assessment form



### UK ABA Autism Education Competence Framework Self assessment Form



Definition, Characteristics & Scope of ABA

ABA 2: Principles, Processes & Concepts

ABA 3: Increasing Behaviour: Rationale for targets, choosing & monitoring

ABA 4: Increasing Behaviour: Consequence based strategies

ABA 5: Increasing Behaviour: Antecedent based strategies - Stimulus Control & Antecedent procedures


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Date: \_\_\_\_\_

**UK ABA Autism Education Competence Framework  
Self assessment Form**

ABA 6: Increasing Behaviour:  
Combining Antecedent &  
Consequence based strategies

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ABA 7: Increasing Behaviour:  
Importance of developing a  
language repertoire

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ABA 8: Decreasing Behaviour:  
Rationale for Intervention,  
Choosing & Monitoring

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K145	
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K147	
K148	
K149	
K150	

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D119	

ABA 9: Decreasing Behaviour:  
Consequence based  
strategies

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ABA 10: Decreasing Behaviour:  
Antecedent based  
strategies

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K165	
K166	
K167	

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Name: \_\_\_\_\_

Date \_\_\_\_\_

**UK ABA Autism Education Competence Framework  
Self assessment Form**

ABA 11: Measurement of Behaviour  
& Data Display

K169	
K169	
K170	
K171	

D129	
D130	
D131	
D132	

ABA 12: Behaviour Change  
Procedures: Generalisation  
& Maintenance

K172	
K173	
K174	
K175	
K176	
K177	
K178	
K179	
K180	

D133	
D134	
D135	
D136	
D137	
D138	
D139	
D140	
D141	
D142	
D143	
D144	
D145	

ABA 13: Behaviour Change  
Procedures: Self Management  
Strategies

K181	
K182	
K183	

D146	
D147	

Professionalism 1:  
Responsible Conduct

K1	
K2	
K3	
K4	
K5	
K6	
K7	
K8	
K9	
K10	
K11	
K12	
K13	
K14	
K15	
K16	
K17	
K18	
K19	
K20	

D1	
D2	
D3	
D4	
D5	
D6	
D7	
D8	
D9	
D10	
D11	
D12	
D13	
D14	
D15	
D16	

Professionalism 2:  
Working with Stakeholders

K21	
K22	
K23	
K24	

D17	
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix G: Test of knowledge

### ABA COMPETENCE FRAMEWORK: TEST OF KNOWLEDGE

Please complete the details section below:

#### DETAILS

**Date:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Training Year group:** \_\_\_\_\_

#### INSTRUCTIONS

There are a total of 20 short answer questions and multiple choice questions (MCQs) to complete. Please read each question carefully before answering.

For the MCQs select the most appropriate answer. Mark your choice by placing a tick (✓) in the appropriate box. Note that some questions you may select more than one answer.

You have ONE hour to complete the following test.

1. Which one of the following is true about Applied Behaviour Analysis (ABA)?

- a. ABA is an intervention to help individuals with autism
- b. ABA can be applied to range of populations and setting
- c. ABA is not effective with older population
- d. ABA is only effective as an early intervention

2. Indicate which of the following are examples of behaviour.

- Sleeping
- Getting wet
- Thinking about sending a birthday card
- Falling down the stairs
- Laziness
- Sunburn
- Talking to someone on the phone

3. Describe three different ways to identify a reinforcer for the pupils you work with.

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4. \_\_\_\_\_ is something that momentarily alters both the effectiveness of a consequence and the frequency of behaviours that has in the past resulted in that consequence.

- a. Establishing operation



- b. Stimulus control
- c. Motivating operation
- d. Discrimination training

5. Pain is an example of a \_\_\_\_\_ punisher and being told off is an example of a \_\_\_\_\_ punisher.

6. Once a behaviour is established, what kind of reinforcement schedule should be used to maintain the behaviour and why?

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7. \_\_\_\_\_ measures the amount of time that a behaviour occurs.

- a. Count
- b. Rate
- c. Duration
- d. Latency

8. Whenever Billy wants to go to the park he asks his father who usually takes him to the park. When he asks his mother, she usually refuses to take him to the park and tells him to play in the garden or in his bedroom. As a result, he usually asks his father to go to the park rather than his mother. This example illustrates:

- a. Discrimination training
- b. Stimulus control
- c. Stimulus generalisation
- d. Instructional control

9. What is the primary focus of Applied Behaviour Analysis?

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10. Shaping involves the \_\_\_\_\_ of successive approximations of a target behaviour.

11. A procedure in which reinforcement of a previously reinforced behaviour is discontinued and as a result, occurrences of that behaviour decrease in the future is:

- a. Punishment
- b. Reinforcement
- c. Establishing Operations
- d. Extinction

12. Paul asks the waiter for something to break open the crab shell. The implement he has been given is not very effective and he cannot get to the crab meat easily. Identify the MO, antecedent, behaviour and potential consequence.

MO:

A:

B:

C:

13. In the \_\_\_\_\_ procedure you prompt the learner to engage in the entire chain of the behaviour from start to finish in each trial.

14. Define and provide an example of negative reinforcement?

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15. List three types of prompt fading strategies? \_\_\_\_\_,  
 \_\_\_\_\_,  
 \_\_\_\_\_.

16. Describe how you would make instructions more effective when teaching a child with autism?

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17. What is a discriminative stimulus? Provide an example.

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18. An immediate increase in frequency, duration or intensity of the response after the removal of the maintaining reinforcer is called:

- a. Extinction burst
- b. Reinforcement
- c. Noncontingent reinforcement
- d. Punishment

19. Shaping can be used to:

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

20. Describe one direct assessment method used in Applied Behaviour Analysis.

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## **Appendix H Ethics approval – Parents’ experiences and perceptions of approaches to autism intervention**

Dear Louise Durman,

2014-11764-A11510 Amendment to Parents’ experiences and perceptions of approaches to autism intervention

Your research proposal number 2014-11764-A11510 has been reviewed by the School of Psychology Ethics and Research Committee and the committee are now able to confirm ethical and governance approval for the above research on the basis described in the application form, protocol and supporting documentation. This approval lasts for a maximum of three years from this date.

Ethical approval is granted for the study as it was explicitly described in the application

If you wish to make any non-trivial modifications to the research project, please submit an amendment form to the committee, and copies of any of the original documents reviewed which have been altered as a result of the amendment. Please also inform the committee immediately if participants experience any unanticipated harm as a result of taking part in your research, or if any adverse reactions are reported in subsequent literature using the same technique elsewhere.

## **Appendix I: Parents' experiences and perceptions of approaches to autism intervention survey**



### **Parents' experiences and perceptions of approaches to autism intervention**

#### Information

You are invited to participate in a piece of research which aims to help us understand parents' experiences and thoughts about approaches to autism intervention. We are interested to hear the views of all parents of children and young people up to the age of 19 with a diagnosis of autism, any autism spectrum disorder, or Asperger's syndrome.

#### "What does the study involve?"

The study is based on the following questionnaire. It is divided into 6 sections which ask for some background information about you and your family, approaches that you may or may not be using with your son and daughter and your beliefs about some of these approaches, your role as a parent, your family needs, and your expectations about the future.

The questionnaire will take 20-30 minutes to complete. We are aware that too little research asks for the views of parents about intervention approaches, and so we appreciate your willingness to consider participating.

#### "Are there any benefits or risks to participation in this study?"

The study will be used to help us better understand parent perceptions of autism interventions. The family needs section will be used by the charity Ambitious about

Autism as part of its campaigning work to improve support for families of children with autism. There are no risks to you as a result of participating in this study.

"What will happen to your data?"

Any data that are used will be entirely anonymous and confidential. You will not be able to be identified in any report, thesis, or publication which arises from this study. The anonymised data collected from this study will be stored securely for 7 years.

"What if you don't want to take part, decide to stop part way through, or decide not to answer any particular questions?"

Your participation is entirely voluntary. It is up to you to decide whether or not you would like to take part. If there are any questions that you would rather not answer, you may leave them blank.

"Who do I contact about the study?"

The study is led by Louise Denne, PhD Student, Bangor University, and supervised by Dr J. Carl Hughes and Dr Corinna Grindle of Bangor University and Professor Richard Hastings of the University of Warwick.

If you have any questions about the study please contact Louise Denne, School of Psychology, Bangor University, Gwynedd, LL57 2AS.

email: [pspc89@bangor.ac.uk](mailto:pspc89@bangor.ac.uk)

If you have any concerns or complaints about this study or the conduct of the individuals conducting this study, then please contact Mr Hefin Francis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS

As with any piece of research it is important that we have your informed consent to participate and we would appreciate your filling in the following initial questions:

Consent

Please initial the boxes

I confirm that I have read and understood the above information concerning this study and know who to contact to ask any questions.

I understand that participation in the study is voluntary and that I am free to withdraw from the questionnaire at any time, and that I do not have to answer any questions that I do not wish to.

I agree to participate in the above study.

Date questionnaire completed: \_\_\_\_\_



## Parent Perceptions Questionnaire

This questionnaire has several different sections. Each section has its own set of instructions. If at any point throughout the questionnaire you feel that a question does not apply to you, please feel free to leave it blank. If you have more than one child with an Autism Spectrum Disorder under 19 years of age, please complete the questionnaire for your oldest child who is under 19.

PART I: Background information

***The following questions ask for background information about you, your family and your child with an Autism Spectrum Disorder (Autism). Please tick the appropriate response or write in the spaces provided.***

5. How old is your child with autism?

6. What is the gender of your child with autism?

7. What is your relationship to your child with autism? E.g. father, mother, stepfather, adoptive parent, guardian etc

8. If you have been given an autism-related diagnosis for your child which of the following best describes that diagnosis?

- Autism
- Aspergers Syndrome
- Pervasive Development Disorder - Not otherwise specified (PDD-NOS)
- Childhood Disintegrative Disorder
- Other (please specify):

9. If you have been given a diagnosis for your child how long did it take from raising your initial concerns to obtaining that diagnosis ?

- Not very long
- A few weeks
- A few months
- More than a year

10. If you have received a diagnosis for your child where were you when you received it?

At home  
At my child's school  
In hospital  
At my local GP  
At a meeting with Child and Adolescent Mental Health Services (CAMHS)  
Other (please specify):

11. Do you feel it has got easier or harder to access services for your child with autism in the last year?

Much easier  
Somewhat easier  
No difference  
Somewhat harder  
Much harder

12. Does your child with autism also have a general learning disability? (described perhaps as mild or moderate or severe or profound)

Yes  
No

13. How much language does your child with autism use?

Non-verbal  
Single word speech  
Phrase speech

14. Do you have any other children with autism?

If yes, how many biological siblings with autism does your child have?

15. To which of the following ethnic groups would you describe yourself as belonging?

White -- British  
White -- Irish  
Any other White Background  
Black/Black British -- Caribbean  
Black/Black British -- African

Any other Black Background  
Mixed -- White and Black African  
Mixed -- White and Black Caribbean  
Mixed - White and Asian  
Any other Mixed Background  
Asian/Asian British - Indian  
Asian/Asian British  
Bangladeshi  
Asian/Asian British -- Pakistani  
Any other Asian Background

16. To which age group do you belong?

Under 24  
25-34  
35-44  
45-54  
55-64  
65 or over

17. What is your current marital status?

Married and currently living with spouse, or currently living with partner  
Divorced or Separated  
or Single or widowed and NOT currently living with a partner

18. Including you and your child with autism how many people live in your household?

19. Please select the highest level of your educational qualifications.

No formal educational qualifications  
5 or more GCSE's or O level's, NVQ 2, or equivalent  
3 or more 'A' Levels, NVQ 3, BTECH National, or equivalent  
Polytechnic/University degree, NVQ 4, or equivalent  
Masters/ Doctoral degree, NVQ 5, or equivalent

20. Do you currently have a paid job outside the home?

If Yes is your job/occupation full or part-time?

21. If you are living with your spouse/partner, do they currently have a paid job outside of the home?

If Yes is this job/occupation full or part-time?

22. Does your child with autism normally live with you?

If No, then where do they live?

23. If your child is of school/further education age, please tell us what type of school he or she attends

Mainstream school, with no additional support

Mainstream school, with additional support

Special school

Specialist unit in mainstream school

Mainstream Further Education

Specialist Further Education

Other (please specify):

24. Which local authority/borough do you live in?

*Recent data from research with families of children with special needs have shown that a family's financial resources are important in understanding family member's views and experiences. With this in mind, we would be very grateful if you could answer the additional question below. We are not interested in exactly what your family income is, but we would like to be able to look at whether those with high versus lower levels of financial resources have different experiences.*

25. What is your current total annual family income? Please include a rough estimate of total salaries and other income (including benefits) before tax and national insurance/pensions

Less than £15,000

£15,001 to £25,000

£25,001 to £35,000

£35,001 to £45,000

£45,001 to £55,000

£55,001 to £65,000

£65,001 to £75,000

£75,001 to 85,000

£85,001 or more

PART 2 Common approaches to autism intervention

**Questions 19 – 36 list approaches commonly used with children and young people with autism. We are interested to hear whether or not you have had experience of any of these. For each of the approaches listed, please tell us whether this approach is being used currently with your child; whether the approach has been used in the past (but not at the moment), or whether the approach has never been used with your child.**

19. Natural environment training (NET)

Currently using  Used in the past  Never Used  Don't know

20. Functional Communication Training

Currently using  Used in the past  Never Used  Don't know

21. Early Denver Start Model (ESDM)

Currently using  Used in the past  Never Used  Don't know

22. Behaviour modification

Currently using  Used in the past  Never Used  Don't know

23. Speech and Language Therapy

Currently using  Used in the past  Never Used  Don't know

24. Incidental Teaching (IT)

Currently using  Used in the past  Never Used  Don't know

25. Visual schedules

Currently using  Used in the past  Never Used  Don't know

26. Applied Behaviour Analysis (ABA)

Currently using  Used in the past  Never Used  Don't know

27. TEACCH (Treatment and Education of Autistic and related Communication Handicapped children)

Currently using  Used in the past  Never Used  Don't know

28. Pivotal Response Training (PRT)

Currently using  Used in the past  Never Used  Don't know

29. Picture Exchange Communication System (PECS)

Currently using  Used in the past  Never Used  Don't know

30. Discrete Trial Teaching (DTT)

Currently using  Used in the past  Never Used  Don't know

31. Son-Rise

Currently using  Used in the past  Never Used  Don't know

32. Early Intensive Behavioural Intervention (EIBI)

Currently using  Used in the past  Never Used  Don't know

33. SPELL (Structure, Positive approaches and expectations, Empathy, Low arousal, Links)

Currently using  Used in the past  Never Used  Don't know

34. Lovaas method

Currently using  Used in the past  Never Used  Don't know

35. Augmentative and alternative communication (AAC); Signing (e.g. Makaton)

Currently using  Used in the past  Never Used  Don't know

36. Verbal Behaviour (VB)

Currently using  Used in the past  Never Used  Don't know

PART 3: Your role as a parent<sup>27</sup>

***The following questions ask about your feelings in respect of your interactions with your child with autism. Please read each statement below, and choose the words that best correspond to your feelings about parenting your child with autism.***

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

37. The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

38. Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

39. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.

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<sup>27</sup> Data from this section was not used in this thesis but have been included in another peer reviewed journal publication: Arellano Torres, A., Denne, L.D., Hastings, R., & Hughes, J.C. (in press) Parenting sense of competence in mothers of children with Autism: Associations with parental expectations and levels of family support needs. *Journal of Intellectual & Developmental Disability*

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree  
40. I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

41. My mother/father was better prepared to be a good mother/father than I am

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

42. I would make a fine model for a new mother/father to follow in order to learn what she/he would need to know in order to be a good parent

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

43. Being a parent is manageable, and any problems are easily solved.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

44. A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

45. Sometimes I feel like I'm not getting anything done.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

46. I meet my own personal expectations for expertise in caring for my child.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

47. If anyone can find the answer to what is troubling my child, I am the one.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

48. My talents and interests are in other areas, not in being a parent.



Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

49. Considering how long I've been a mother/father, I feel thoroughly familiar with this Role

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

50. If being a mother/father of a child were only more interesting, I would be motivated to do a better job as a parent

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

51. I honestly believe I have all the skills necessary to be a good mother/father to my child.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

52. Being a parent makes me tense and anxious.

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

53. Being a good mother/father is a reward in itself

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

PART 4: Perceptions about behavioural approaches to autism

***There are many different approaches to autism intervention and the discussions around the relative merits of each are sometimes lively. Applied Behaviour Analysis (ABA) in particular attracts much debate amongst parent and professional communities and also individuals with autism. However, very little is known about what parents think. In this section, we want to explore your views about ABA whether you have used ABA approaches with your child with autism or not. We are interested in everyone's views.***

***Please choose the statement that best corresponds with your views:***

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

54. ABA does not lead to proper learning because it is based on rewarding and bribing children to do things.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

55. ABA is highly individualised and tailored to meet a child's needs.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

56. ABA is chosen by parents who want to cure their children instead of being happy with them just as they are.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

57. ABA can be used successfully with older children and teenagers.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

58. ABA needs to be delivered 1:1 (one teacher or therapist per child) to be effective.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

59. I am uncomfortable, or would be uncomfortable, using ABA because it is not "approved" by the education or health local authorities in the UK.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

60. In an ABA programme, the therapist or tutor often follows the child's lead

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

61. Children who have been taught using ABA methods are often robotic in their responses.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

62. ABA is based on a highly structured curriculum that every child has to follow

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

63. Once you start on an ABA programme, it is very difficult to reduce or stop the programme.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

64. It is because of the intensity of many ABA programmes that children can make significant gains.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

65. ABA places pressure on family life.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

66. ABA is relevant for children with autism in any Western culture

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

67. ABA focuses on trying to reduce self-stimulatory and other “autistic” behaviour.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

68. Only those who can afford it have access to ABA.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

69. ABA is simply trying to teach to children with autism the skills that all children need to learn.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

70. The focus of ABA programmes is on increasing positive behaviour rather than on behaviour problems.

Strongly Agree      Agree      Not Sure      Disagree      Strongly Disagree

Part 5: Your Family needs<sup>28</sup>

***This section asks you questions about your family's needs in terms of information and support in relation to your child with autism. Please read each statement listed below and indicate how important it would be for you to have support in each of the areas.***

29. How important to you would it be to have information on the following topics?

Very important      Important      Neither important nor unimportant  
Unimportant

- a. How children grow and develop
- b. How to play or talk with my child
- c. How to teach my child
- d. How to handle my child's behaviour
- e. Information about any condition or disability my child might have
- f. Information about services that are presently available for my child
- g. Information about the services my child might receive in the future

30. How important to you would it be to have the following Family and Social Support?

- a. Talking with someone in my family about concerns
- b. Having friends to talk to
- c. Finding more time for myself
- d. Helping my partner accept any condition our child might have
- e. Helping our family discuss problems and reach solutions
- f. Helping our family support each other during difficult times
- g. Deciding who will do household chores, child care, and other family tasks
- h. Deciding on and doing family recreational activities

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<sup>28</sup> Data from this section was not used in this thesis but have been included in another peer reviewed journal publication: Arellano Torres, A., Denne, L.D., Hastings, R., & Hughes, J.C. (in press) Parenting sense of competence in mothers of children with Autism: Associations with parental expectations and levels of family support needs. *Journal of Intellectual & Developmental Disability*

31. How important to you would it be to have the following financial assistance?
- Paying for expenses such as food, housing, medical care, clothing, or transportation
  - Getting any special equipment my child needs
  - Paying for therapy, day care, or other services my child needs
  - Counselling or help in getting a job
  - Paying for babysitting or respite care
  - Paying for toys that my child needs
32. How important to you would it be to have help explaining the following to others?
- Explaining my child's condition to my parents or my partner's parents?
  - Explaining my child's condition to his or her siblings
  - Knowing how to respond when friends, neighbours, or strangers ask questions about my child
  - Explaining my child's condition to other children
  - Finding reading material about other families who have a child like mine
33. How important to you would it be to have help with the following aspects of Child Care?
- Locating babysitters or respite care providers who are willing and able to care for my child
  - Locating a day care program or preschool for my child
  - Getting appropriate care for my child in a church or synagogue during religious services
34. How important to you would it be to have the following Professional Support?
- Meeting with a minister, priest, rabbi, imam, pundit or other religious leader
  - Meeting with a counsellor (psychologist, social worker, psychiatrist)
  - More time to talk to my child's teacher or therapist
35. How important to you would it be to have the following community services?
- Meeting and talking with other parents who have a child like mine
  - Locating a doctor who understands me and my child's needs
  - Locating a dentist who will see my child

PART 6: Hopes for the future<sup>29</sup>

***The following questions ask about your expectations for the future in relation your child with autism. Please use the following rating scale to choose the statement that best corresponds with your realistic longer-term expectations for your son or daughter with autism:***

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

I expect my son or daughter with autism:

71. To be able to access further education

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

72. To be physically fit and healthy

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

73. To be able to get job that they enjoy

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

74. To have close relationships with their immediate family

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

75. To be able to enjoy a close relationship outside of our immediate family  
(boyfriend/girlfriend/spouse)

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<sup>29</sup> Data from this section was not used in this thesis but have been included in another peer reviewed journal publication: Arellano Torres, A., Denne, L.D., Hastings, R., & Hughes, J.C. (in press) Parenting sense of competence in mothers of children with Autism: Associations with parental expectations and levels of family support needs. *Journal of Intellectual & Developmental Disability*

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

76. To have close friends

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

77. To live in the home and community of their choice

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

78. To be financially secure

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

79. To have their own children

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

80. To be an active participant in their community

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

81. To have an active social life

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

82. To understand themselves

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

83. To have a range of leisure pursuits (reading, listening to music etc.)

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

84. To participate in physical activities (going to the gym, sport etc.)

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

85. To live independently, with no need for social care or other special services

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

86. To be able to help and encourage others

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

87. To be able to express themselves creatively (art, music, writing etc.)

Strongly Agree    Agree    Not Sure    Disagree    Strongly Disagree

Thank you for completing this questionnaire. Your views are important to us and your participation is much appreciated. If you would like to receive a summary of the findings of this study please send an email to Louise Denne at Bangor University using the following e-mail address: [pspc89@bangor.ac.uk](mailto:pspc89@bangor.ac.uk)



**Appendix J: Ethics approval: Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism**

Dear Louise,

2014-13985-A13471 Amendment to to Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism

Your research proposal number 2014-13985-A13471 has been reviewed by the Psychology Ethics and Research Committee and the committee are now able to confirm ethical and governance approval for the above research on the basis described in the application form, protocol and supporting documentation. This approval lasts for a maximum of three years from this date.

Ethical approval is granted for the study as it was explicitly described in the application

If you wish to make any non-trivial modifications to the research project, please submit an amendment form to the committee, and copies of any of the original documents reviewed which have been altered as a result of the amendment. Please also inform the committee immediately if participants experience any unanticipated harm as a result of taking part in your research, or if any adverse reactions are reported in subsequent literature using the same technique elsewhere.

## **Appendix K: Information sheet: Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism**



### INFORMATION SHEET

Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism

You are invited to participate in a new study being conducted at Bangor University. Its aim is to help us understand the experiences and thoughts of those involved in the commissioning of interventions in the support and education of children and young people with autism.

The report "*A Future made together, Shaping Autism Research in the UK*", commissioned by the UK charity Research Autism in 2013, revealed a paucity of research into treatments and interventions for children with autism. Much of the research that has been conducted has, to date, focused on the experiences and perceptions of individuals with autism, their parents and professionals. We would like to explore this important issue with those involved in the commissioning of services. By commissioning we mean identifying, securing and monitoring services that meet an individual's needs. This may be as part of, or on behalf of a local authority, a school or group of schools, or education otherwise such as home or community based programmes. We are particularly interested in your experience of behavioural interventions. By "behavioural" we mean any intervention that is based on the principles of behaviour analysis. This includes for example: PECS, Natural Environment Teaching, Applied Behaviour Analysis (ABA), Verbal Behaviour, Positive Behaviour Support (PBS) and those programmes described as "Lovaas". There is little research at all in this area and little is known about how those involved in commissioning like yourselves feel about the services that you are providing. It is especially important given recent changes to SEN provision and the publication over the past few months of a raft of guidelines and commissioning guides in respect of challenging behaviour, learning disabilities and autism. It is hoped that the research will contribute towards gaining understanding of the kinds of issues that arise when dealing with trying to put evidence based research into practice.

***What does the study involve?***

The study is in the form of a semi-structured interview conducted face to face or by telephone. A semi-structured interview consists of a number of set questions which serve as a guide for more open discussion. Participation in the research project will involve the following:

- If you are interested in taking part, please complete the enclosed consent form and send it to Louise Denne in the enclosed SAE.
- A researcher (Louise Denne) will phone you within two weeks of receiving the consent form to arrange a convenient time to conduct the interview.
- The interview will begin by asking you about your role in respect of commissioning and of who else might be involved in the decision making process. We would then move on to talk about instances in which you have been involved in deciding whether or not to commission a behavioural intervention, how the request or suggestion came about, and the factors that came into play in the decision making process. Specifically, we would like to understand your experiences and thoughts in relation to one example in which the decision was taken to commission a behavioural approach; and another example in which such a request was turned down looking at both the barriers and facilitators that may have shaped those decisions. The interview will be recorded, with your permission, and is anticipated to last for around 45 minutes to an hour.

***Are there any benefits or risks to participation in this study?***

The study will be used to help us better understand the factors that influence the commissioning process in respect of behavioural interventions for the support and education of children with autism; understanding facilitators and barriers is a key to the implementation of evidence based practice. There are no risks to you as a result of participating in this study.

***Consent:***

If you decide to become involved in the project then you will be required to complete the enclosed consent form and return this to us.

***Withdrawal:***

Should you decide that you no longer wish to be involved in the study, the information that you have provided can be withdrawn at any time without you giving any reason. Even after the interview has been completed, consent can be withdrawn and any data collected will be destroyed.

***Confidentiality:***

- When recordings of the interview are not being used they will be stored in a locked filing cabinet.
- Information identifying you or the local authority, organisation or school that you work for will not be stored on or with the tape.

All information collected will be kept on a confidential database that is only accessible to the researchers working on the project. If published, information will be presented without reference to any identifying information. Once the study has been completed recorded interviews will be destroyed.

***At the end of the study:***

We will send you information on the results of the study.

***Any concerns or queries?***

If you are unclear about any aspect of the study or have any questions, please do not hesitate to contact Louise Denne by telephone: 0784 6938997, by email: [pspc89@bangor.ac.uk](mailto:pspc89@bangor.ac.uk) or at address on the covering letter.

If you have any concerns or complaints about this study or the conduct of the individuals conducting this study, then please contact:

Mr Hefin Francis,  
School Manager,  
School of Psychology  
Bangor University  
Brigantia Building  
Penralt Road  
Bangor,  
Gwynedd  
LL57 2AS

**Appendix L: Consent form: Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism**



CONSENT FORM

Title of project: Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism

Researcher: Louise Denne

Please initial the boxes below:

- 1. I confirm that I have read and understood the information sheet Ref: *PSPC89 S4* for the above study. I have had the opportunity to consider the information and ask questions.
- 2. I understand that my participation is entirely voluntary and that I am free to withdraw that permission at any time without giving reasons.
- 3. I understand that any data used for research purposes will be treated in confidence and will be anonymous.
- 4. I understand that the interview will be recorded for coding purposes and will be destroyed after use.
- 4. I agree to participate in the above study.

Participant name:

Contact tel no:

Date:

Signature:

Researcher:

Date:

Signature:

Please return the consent form in the envelope provided/email to Louise Denne [pspc89@bangor.ac.uk](mailto:pspc89@bangor.ac.uk).

## Appendix M: Interview protocol



Experience and perceptions of those involved in the commissioning of services in the support and education of children and young people with autism

### Interview Protocol

#### Contents

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#### INTRODUCTION

To be filled out by interviewer prior to interview

Date of interview.....

Name of interviewee.....

Interviewee's job title.....

Local Authority.....

School/Organisation (if relevant) .....

### Introduction

- Thank you very much for agreeing to participate in this research. What we are trying to do is to find out about your experiences and thoughts about the processes involved in the commissioning of interventions in the support and education of children and young people with autism. We are particularly interested in your experience of behavioural interventions.
- To do this I will be asking questions about the commissioning process, and ask you to think about examples of where you have commissioned a behavioural intervention and an example where you chose or were part of the team that chose not to commission a behavioural intervention.
- You have signed the consent form agreeing to participate and allowing me to record the interview. I would like to reiterate that that any information which you give to me today will remain completely confidential and anonymous; and also that your participation is entirely voluntary. If you wish to stop at any time you may without having to give any reasons and also you may take a break at any time. Just let me know if that is the case. Are you ready to start?

### A. Background Information

A1. So, to begin with, can you tell me a bit about your role and how you are involved in the commissioning of services?

#### Prompts

- *Is this as part of a team or are you the sole decision maker?*



- *If it is as part of a team who else is involved?*
- *Is this a fixed team or does it change depending on the decisions to be made?*
- *Do the decisions tend to be in respect of establishing policies (i.e. so that the same services are offered to everyone?) or on a case by case basis?*
- *Typically how might a request arise?*

## B.1 Experience of behavioural interventions

B.1.1 Have you ever been asked to consider commissioning a behavioural intervention as part of your service offering or for an individual case?

By behavioural I mean any intervention that is based on the principles of behaviour analysis. This includes for example: PECS, Natural Environment Teaching, Applied Behaviour Analysis (ABA), Verbal Behaviour, Positive Behaviour Support (PBS) and **those programmes described as “Lovaas”**.

Prompts

- *If yes*
  - *How often do such requests arise?*
  - *Where typically do the requests come from?*
    - *Family*
    - *School*
    - *EP*
    - *etc*
  - *Typically how is the behaviour intervention described? ABA, VB, PBS etc?*
  
- *If no*
  - *Why do you think this is?*
    - *Good local offering*
    - *Local authority known to not support behavioural interventions*
    - *Requests blocked before they get to LA/Head etc*

## B.2 Commissioning a behavioural intervention

### B.2.1. Have you ever commissioned a behavioural intervention?

#### Prompts

- *Can you give me an idea of the number of times you have agreed to commission such services (say in the last two years)*
- *Typically what interventions are we talking about?*

B.2.2. Can you please choose one example and talk me through the process that you went through in order to make the decision to commission?

**Prompts**

- *What intervention was it?*
- *What factors were taken into consideration?*
- *Were there any objections raised? By whom?*
- *What were the deciding factors?*
- *Was this a unanimous decision?*

B.2.3. What has your subsequent experience of that decision been?

**Prompts**

- *How long was it commissioned for?*
- *Has it been successful?*
  - *How has this been measured?*
- *Have there been any difficulties*
- *If not successful, what might need to happen (or to have happened) for it to be (have been a success?)*

B.3 Deciding not to commission a behavioural intervention

B.3.1. Have you ever been involved in a decision not to commission a behavioural intervention?

***If yes***

B.3.2. Can you please choose one example and talk me through the process that you went through in order to make the decision not to commission?

**Prompts**

- *What intervention was it?*
- *What factors were taken into consideration?*
- *Were there any objections raised? By whom?*
- *What were the deciding factors?*
- *Was this a unanimous decision?*

***If no***

B.3.3 Can you please talk me through the reasons why?

## C. Commissioning Behavioural Interventions in the future

C.1. On the basis of your experience how likely are you to commission behavioural interventions in the future?

### Prompt

- *What would need to happen for you to reconsider this?*
  - *Change in funding/cost structure?*
  - *New evidence*
  - *Changes to existing guidelines?*

C.2. Do you anticipate that the changes as a result of the Education Act 2014, the changes around health and social care will lead to changes in the way that interventions are commissioned and the type of intervention?

## D. Debrief

Thank you very much for helping with this interview. Is there anything else that you would like to mention that you think is important? Do you have any questions for me?

Now that you have done the interview, do you know of any other professionals involved in commissioning who you think would like to do this interview?

My intention is to interview about 20 individuals each with different roles but involved in some way in commissioning, across different local authorities. I anticipate finishing the data collection in July this year and being in a position to share initial findings and a summary report at the start of the next academic year. Would you like a copy of the findings?