

An Evaluation of a Professional Development Programme in Functional Behavior Assessment for Educators in Australia

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Abstract

The efficacy of delivering autism-focused Functional Behaviour Assessment (FBA) training within a six-session professional development (PD) framework was investigated with 23 Australian educators. FBA knowledge, self-efficacy (SE), and confidence were measured pre-to-post- PD series as markers of educator ability to address the challenging behaviours associated with Autism Spectrum Disorder (ASD). A significant relationship was found between confidence, SE, and overall performance in various aspects of the educator's job role. These results suggest that this form of PD may be used to train educators in the skills necessary to improve both their own working experience and their students' learning opportunities.

Keywords: *autism; Functional Behaviour Assessment; teaching; education; professional development; Self-Efficacy*

Introduction

The neurodevelopmental condition of Autism Spectrum Disorder (ASD) is characterised by pervasive impairments in social communication and reciprocal social interaction, plus rigid and repetitive behaviour, interests, and activities (APA, 2013). These impairments can have adverse social-emotional and academic repercussions on the daily functioning of the individual with ASD within a school setting, resulting in elevated levels of problem behaviours, social anxiety, academic disengagement, and higher rates of suspension and expulsion (Baker, Lane, Angley, & Young, 2008; Carter, Davis, Klin, & Volkmar, 2005; Macintosh & Dissanayake, 2006).

The prevalence of ASD has increased over twentyfold during the recent decades, with Australian figures indicating that between 1.1% of males and 0.3% of females have been diagnosed with an ASD (Australian Bureau of Statistics, 2017). This escalation in prevalence has resulted in a greater number of children with ASD in mainstream classrooms. Such children are highly likely to exhibit problem behaviours (Macintosh & Dissanayake, 2006), and are unlikely to respond to generic behavioural interventions because their behaviours are deemed severe and complex in nature (Matson & Shoemaker, 2009; Roth, 2010). This has led to increased interest in more specialised approaches for child behaviour management in the classroom based upon Functional Behaviour Assessment (FBA).

FBA focuses on the individual child's specific responses in addition to the contextual factors (ie, antecedents and consequences) which contribute to occurrence of their challenging behaviour in the classroom (Trussell, Lewis, & Stichter, 2008). As such, FBA is a systematic process for conceptualising challenging behaviours, and the underlying functions that predict and maintain such behaviours (Munk & Repp, 1994; Sugai et al., 2000). The intervention planning that follows the FBA process has proven successful when applied to the problem behaviours shown by many children with ASD (Lane, Oakes, & Germer, 2014), and its success in creating long-term and meaningful behaviour change has been linked to the FBA emphasis on identifying the purpose or function of the apparently 'illogical' or 'unpredictable' behaviour shown by some children with ASD (Fox & Conroy, 2000).

Applied FBA has been effectively employed with a diverse range of individuals in the school environment (Lane, Oakes, & Germer, 2014). For example, FBA-driven interventions have improved the behavioural outcomes of boys with behavioural adjustment difficulties (Lo & Cartledge, 2006), increased the rate of prosocial responses in children and adolescents with behavioural and emotional disorders (Hendrickson, Gable, Conroy, Fox, & Smith, 1999; Fox & Conroy, 2000), reduced classroom disturbances (Packenham, Shute, & Reid, 2004), been effective preventative measures for mild behavioural challenges (Scott & Caron, 2005), and produced positive behaviours (eg, hand-raising to ask questions or increased participation in classroom activities) in children with ASD (Hanley, 2012).

The education system in Australia is increasingly crediting applied FBA as being a respectful, client-focused method for promoting the development of prosocial behavioural interventions which acknowledge and address the functionality of the behaviour exhibited by school children with ASD (Bambara & Kern, 2005; Umbreit et al., 2007). FBA is currently a

recommended form of assessment for Australian schools to use in developing individual behavioural intervention plans as part of the third tier of the positive behaviour and intervention support (PBIS) framework. This framework incorporates FBA procedures within a larger whole-school reformation which aims to elicit proactive, prosocial, and positive responses in students.

However, there is some evidence to suggest that many educators who employ FBA do so in a partial or fragmented manner, with less than half of these educators applying the entire FBA process (O'Neill & Stephenson, 2010). Some of the factors that cause this truncation of the FBA process may include lack of time, poor awareness of FBA procedure and utility, and inappropriate training (O'Neill & Stephenson, 2010; Pithers & Soden, 1998). Moreover, even in instances where FBA training has been implemented, it has been suggested that its success in creating changes to educator-driven applications in the classroom is impacted by educator characteristics such as self-efficacy (SE), and self-confidence (SC) (Cooper, 2010; Meichtry & Smith, 2007). High levels of SE can increase standards of teaching behaviour, plus increase student motivation and achievement (Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk-Hoy, 2001), whereas lower levels of SE in educators have been associated with self-doubt on content delivery, decreased utilisation of environmental and efficacious teaching strategies, and overall lower performance levels (Bandura, 1998). Self-confidence (SC) is another characteristic that can directly impinge on an individual's performance (Callingham & Watson, 2014). SC may be defined as an individual's self-reliance or definitive belief concerning some aspect of his/her performance (Kirkpatrick, 1983). SC is considered to be a more fluid construct than SE and may be more suited to measurement of specific learning variables associated with particular content areas (Meichtry & Smith, 2007; Callingham & Watson, 2014). The variables of SE and SC were targeted within the training program in the present study because SE represents the broad dynamic of perceived ability to deliver behavioural strategies and SC can directly impinge on educators' ability to deliver such strategies in the classroom context (Callingham & Watson, 2014).

Aims of the study

To determine if a six-session, eight-week FBA training programme developed for educators who taught and/or supported students with ASD within mainstream school settings could improve the educator's FBA knowledge, SE, and SC characteristics.

Methods

Participants

All mainstream state primary and high schools in the South-Eastern region of Education Queensland were contacted by the Centre for Autism Spectrum Disorder (CASD) at Bond University via an email to Principals between 9am and 3pm. Interested teachers contacted the CASD and participated in a brief telephone interview to ensure selection criteria were met. Twenty-three educators were selected on the basis of the following four criteria: (a) they must have been working directly with a student with ASD in a teaching and/or support capacity, (b) they must have reported that the ASD student exhibited challenging behaviour of sufficient intensity to interfere with learning engagement, (c) they must have previously attempted to apply a behavioural support plan that did not succeed in addressing the challenging behaviour, and (d) they would agree to actively implement best-practice FBA and subsequent FBA interventions to their chosen student's behaviour on a daily basis within the classroom context.

The sample (87% female, and 13% male) consisted of classroom educators (52%), Special Education staff (30%) Heads of Special Education (HOSES) (13%), and Deputy Principals (5%). Of the 23 participants, 18 were trained as primary school educators (78%) and five were trained as high school educators (22%). Participation in the present study contributed to the partial fulfilment for mandatory professional development (PD) hours in order to maintain registration with the Queensland College of Teachers.

Instruments

FBA Knowledge

The measure of FBA knowledge was developed by the first author and comprised 12-items about the participants' knowledge of FBA concepts and FBA-driven interventions. Three of the items represented statements that could be dichotomously scored as correct/incorrect. The remaining nine items tapped participants' understanding of the underpinning rationale for FBA data-collection and analysis procedures. These items required an open-ended short written response with two elements embedded therein, which were graded accordingly on a 0, 1 or 2 scale. The maximum for the totalled score on the FBA knowledge was 21. Items are shown in Table 1.

Table 1. FBA knowledge items

Item one	Functional Behaviour Assessment is used to investigate a number of factors which impact on student behaviour. Identify the factor which happens before the behaviour, is capable of triggering that behaviour, and can be directly observed by you.
Item two	Identify the feature which is not required in order for an operationalised behavioural definition to be developed.
Item three	Functional Behaviour Assessment is used to investigate a number of factors which can cause student behaviour to persist over time. Identify the factor which happens after the behaviour, is capable of helping the student cope with demand, and can be directly observed by you.
Item four	Briefly describe what a Functional Behaviour Assessment is.
Item five	Briefly explain the reason why a Functional Behaviour Assessment is usually conducted before developing interventions to manage the challenging behaviour of students.
Item six	Investigation of setting events is an important part of a Functional Behaviour Assessment. Briefly define this factor and give one example of a setting event which is particularly relevant to students with an ASD.
Item seven	Outline the advantages of collecting data on specific student behaviours during a Functional Behaviour Assessment. Give examples of two data-collection methods that can be used in the classroom to collect information on student behaviour.
Item eight	Once a Functional Behaviour Assessment has been completed, the data which have been collected on factors such as antecedents are often classified into themes or groups. Briefly explain the advantages of group different types of antecedents into themes.
Item nine	Briefly explain the reasons why Functional Behaviour Assessment focuses on identifying the functions of students' challenging behaviour. Give two examples of functions that relate to the behaviour of students with an ASD.
Item ten	Briefly explain why it is important to develop and test hypotheses about challenging behaviour during a Functional Behaviour Assessment.
Item eleven	Briefly state why it is important to include proactive changes to the learning environment as part of an intervention developed to change student behaviour. Give examples of two changes you would make in the classroom to promote positive responses from your student with an ASD.
Item twelve	Briefly explain how information gained on the functions of challenging behaviour (during a Functional Behaviour Assessment) can be used during an intervention. Give examples of two ways in which knowledge on functions can be used to promote positive responses from your student with an ASD.

Teacher Sense of Efficacy Scale

Klassen and Ming Chui's (2010) 20-item Teacher Sense of Efficacy Scale (TSES), job satisfaction, and overall job stress, was used to assess SE. The TSES requires respondents to rate themselves on SE statements and job stress statements on a nine-point Likert scale, from 1 indicating "nothing", to 9 indicating "a great deal" (Fives & Buehl, 2008). The SE and job stress statement ratings were combined and totalled. Tschannen-Moran and Woolfolk-Hoy's (2001) reported satisfactory validity and reliability for the TSES.

Self Confidence

The SC measure employed in this study was designed to assess the participants' beliefs concerning their capacity to deliver curriculum and support to students with ASD exhibiting challenging behaviour. Ten items were designed by a collaborative group of clinician-researchers who had extensive experience in remediating challenging behaviours in an educational context (see Appendix A). Each item assessed a different facet of educator confidence in their capacity to instruct and support a student with ASD on a daily basis. Educators responded to items via a scale of ratings ranging from zero to 100 (zero = "not confident", and 100 = "extremely confident").

Procedure

Following recruitment, participants were asked to complete a Pre-Training Survey consisting of the knowledge of FBA scale, the TSES, and the SC measure described above, one week prior to commencing their FBA training. They then participated in the training programme and completed a Post-Training Survey one week after the eight weeks of the programme. Of the 23 participants, 22 completed all pre- and post-training self-reporting requirements. The remaining individual did not complete the FBA measure post-training questionnaire. Ethical approval for this study was given by the Bond University Human Research Ethics Committee.

Training Schedule

As described above, the six-session training programme was presented over eight-weeks, with sessions one to four delivered weekly, and sessions five and six given on a fortnightly basis. The one-week break between sessions four, five, and six was designed to provide participants with the opportunity to apply their newly gained FBA skills independently within the school setting with coaching available from training staff if/when required.

Training Procedure

Training was created to comply with best-practice recommendations from the research on FBA in both laboratory (Hanley, 2012) and school settings (Lo & Cartledge, 2006). To this end, the training focused on *data-collection*, *data-analysis*, plus additional *FBA-driven intervention planning and monitoring* phases of FBA. The *data-collection* process used in the course focused on direct observation plus recording of behaviour and its precursor and maintaining variables. This process also included training the educators to complete rating scales and undertake interviews as indirect data collection methods. *Data analysis* involved clustering of data to produce themes that allowed for hypotheses on precursor-behaviour and behaviour-function relationships. *FBA-driven intervention planning and monitoring* reviewed the traditional and applied models for FBA and refined these to

ensure that training content, practice activities, and data-collection materials that participants were to apply in their classrooms were applicable within a classroom context and sufficiently structured and comprehensible so as to avoid creating disruption to the everyday responsibilities of the educator participants or their students.

Statistical Analyses

The Statistical Packages for the Social Sciences (SPSS) version 23 was used to perform a repeated measures multivariate analysis of variance (RM-MANOVA) to ascertain change in FBA knowledge, SE, and SC over the period of the training. Pearson product correlations were used to gauge pre- and post-training relationships between FBA knowledge, SE, and SC. Listwise deletion was employed to account for missing data. Assumption testing revealed no violation. The alpha level of significance was set at 0.05.

Results

Pre-to-post training differences

Table 2 shows the participants' mean pre- and post-training scores for SE, SC, and FBA knowledge.

Table 2. Pre- and post- training series descriptive statistics for SE, SC, and FBA knowledge

		<i>n</i>	<i>M</i>	<i>SD</i>
Pre- FBA training				
	SE	23	131.91	12.54
	SC	23	62.30	12.09
	FBA Knowledge	22	5.91	2.33
Post- FBA training				
	SE	23	139.61	14.73
	SC	23	73.61	1.54
	FBA knowledge	22	12.73	2.77

A significant omnibus effect was found for the MANOVA ($F(1, 21) = 1584.86, p < .001$, partial $\eta^2 = .98$). There were significant univariate increases in FBA knowledge ($F(1, 21) = 61.49, p < .001$, partial $\eta^2 = .75$), educator SE ($F(1, 21) = 6.52, p = .018$, partial $\eta^2 = .24$), and SC ($F(1, 21) = 28.16, p < .001$, partial $\eta^2 = .54$) from pre- to post-test.

Pre- and Post- Training Relationships

Pearson product moment correlations were conducted between the independent variables of SE, SC, and FBA knowledge to determine the degree of relationship between the variables. Significant relationships were detected between pre-training measures of educator SE and SC ($r(21) = .61, p = .002$), and post-training measures of SE and SC ($r(21) = .52, p = .01$). FBA knowledge was not significantly related to SE or SC.

Discussion

These results provide initial evidence for the efficacy of using PD as a method of delivering FBA training to educators, and also showed that a six-session, eight-week training course may be sufficient in facilitating significant FBA knowledge gains.

The pre- to post-training change in FBA knowledge found here is congruent with recent data from another study which recorded similar increases in FBA knowledge pre- and post- PD FBA training offered in the USA (Lane et al., 2014). However, that study differs from the present one in terms of location and duration of professional development training because Lane et al.'s (2014) training series spanned a year, in contrast to the eight-week timeframe employed in this study. The eight-week timespan of this study was a result of the need to fit within the time and activity demands that these educators experienced. This study supports the utility of the educator's mandatory PD hours as an appropriate training arena for FBA processes and subsequent FBA intervention design, and suggests that a very long training period (e.g., one year) may not be required to obtain significant improvements in participants' FBA knowledge.

The significant change in educator SE and SC pre- to post-training suggests that, not only did the FBA training positively impact educators' SE, but also that significant positive changes in educator SE and confidence relating to FBA were made in a relatively short time. This finding is congruent with that reported by Dierking & Fox (2013), who found that advancing educators' knowledge base built their sense of confidence and promoted self-empowerment.

This finding is also of note because it may directly translate to educator effectiveness (Dierking & Fox, 2013; McBer, 2001; Ross, 1994; Sandhultz & Ringstaff, 2014). Thus, effective utilisation of FBA may be an important tool in bolstering the internal characteristics of SC and SE in educators to address challenging behaviours of those within their classroom. Correlations between the variables of educator SE and SC pre- and post- training suggest that eliciting changes in one aspect of training (e.g., a programme aimed at improving confidence) may likewise elicit changes in another aspect of educator activity.

Limitations within this study include the sample size, and the use of FBA knowledge gains as the overall measure of FBA utility. Although the significant FBA knowledge gains identified in this study signified a promising beginning for the educators and for PD training series model, generalisation to actual behaviour change by students in the educators' classrooms is the gold standard of efficacy of training programmes such as this one. Future research should focus upon theoretical and applied knowledge gains via the measurement of FBA knowledge and the success of the FBA model application. Additionally, future research may follow up the relationship found between SE, SC, and FBA to ascertain if the immediate effectiveness of the training programme was maintained over time.

In conclusion, this study pioneered the presentation of FBA to Australian educators in a professional development setting to improve the educator's FBA knowledge, SE and SC. Results signified that this is a promising avenue to deliver meaningful FBA training within a short training period and that it may have spin-off effects on SC and SE.

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Appendix A

Measure of confidence to remediate challenging behaviour of a student with an ASD

- How able are you to help your students with an ASD to make transitions without risking the onset of challenging behaviour?
- How able are you to advocate for the emotional and socio-emotional needs of student with an ASD in your school?
- How able are you to identify the functions of the challenging behaviour students with an ASD engage in?
- How able are you to identify the antecedents which might make students with an ASD vulnerable to using a challenging behaviour?
- How able are you to identify the low-level behaviours which indicate that students with an ASD are becoming anxious?
- How able are you to identify the general environmental factors that might cause students with an ASD to become confused and disengaged from learning?
- How able are you to help parents to apply the intervention strategies you use at school to manage their child's behaviour at home?
- How able are you to incorporate the data collection and data interpretation techniques you have learned in your daily teaching practice?
- How able are you to use data you collect to plan environments and tasks that support the specific needs of students with an ASD?
- How able are you to access support/resources from within your school to deliver optimal learning and support for your student with an ASD?

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