Outcomes for staff participating in positive behavioural support training

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Abstract

Background: Numerous disability service jurisdictions engage training providers to facilitate increased workforce capacity in positive behavioural support (PBS). For this objective to be met, training content needs not only to display strong adherence to the established PBS evidence base, it must demonstrate uptake of this information by training participants. This evaluation of PBS training considers participant outcomes in terms of causal attributions for challenging behaviour, PBS knowledge, and skill in developing PBS plans.

Method and materials: Training evaluation was based upon outcomes and responses from 234 participants who undertook PBS training delivered throughout 2012. The format for the evaluation was partially informed by Kirkpatrick's (1959) influential model, with participant feedback, changes in causal attributions for challenging behaviour, PBS knowledge, and skill in developing a PBS plan tracked over time.

Results: Significant changes in causal attributions and PBS knowledge were found post-training. Importantly, participants represented a relatively diverse range of professionals, including managers, operational staff and clinicians, and all groups differentially benefited from the program. Such benefit was not related to prior training experiences, indeed, benefit from involvement in prior training was not identified. The quality of PBS plans prepared by participants further highlighted the differential benefit across groups. Notwithstanding this, modifications to course content were identified as being necessary to further enhance trainee outcome. Participant satisfaction with the course was high, and supportive of a longitudinal training strategy.

Conclusions: Endorsement for the current training program was strong. Training providers should systematically evaluate course outcomes and clearly articulate congruency between course content and the evidence base for PBS. Any failure to demonstrably evidence training outcome risks disrupting progression toward the systematic implementation of PBS.

Keywords: Positive behavioural support, training, evaluation

Introduction

The significance of challenging behaviour in the lives of people with an intellectual disability and those who support them has been well documented. The prevalence of challenging behaviour is relatively high and negative outcomes are all too frequently experienced by both the person (Emerson, 2001) and those who provide them with support (Vassos and Nankervis, 2012). Despite this, the intervention approach which has been demonstrated to reduce this negative outcome has been readily available for many years. Positive Behavioural Support (PBS) emerged from its parent discipline of Applied Behaviour Analysis (ABA) (Johnston et al, 2006) and draws on the decades of experimental and applied research which demonstrate behavioural technology as an effective response to challenging behaviour.

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Positive Behavioural Support is the term used to describe the integration of the contemporary value base of disability service provision with the clinical framework of ABA (eg, Carr et al, 2002). In the past, these values have been loosely described within the context of the 'normalization' movement (Singer and Wang, 2009) which sought to remediate the disenfranchised social context of people with a disability. More recently, however, the United Nations Convention on the Rights of Persons with Disabilities has shifted the moral imperative of disability service provision from a 'vision to a better future' to an immediate obligation of legal and administrative protection of wellbeing and dignity (Chan, French and Weber, 2011). By decree of the United Nations, the rights afforded in the convention must be made immediately available to persons with a disability. This legal establishment of the human rights of people with disabilities realises their fundamental human dignity in addition to their value as fully participating and contributing members of society (French, 2010).

Notwithstanding the inarguable obligation to further the human rights and dignity of people with an intellectual disability, some people may engage in challenging behaviour despite the improvement in their social context. In these situations, PBS employs ABA as the technical framework for both increasing skill and facilitating reductions in intensity, frequency or duration of challenging behaviour (Carr et al, 2002). ABA provides a substantive evidence base as the technology of choice in facilitating positive behaviour change (Herbert, Sharp and Gaudiano, 2002; Kahng, Iwata and Lewin, 2002; Matson, Benavidiz, Compton, Paclawskyj and Baglio, 1996; Sturmey, 2002). The central clinical features of ABA employed by PBS include: (a) the use of functional behaviour assessment to inform targeted and specific interventions; (b) the remediation of problematic environments; (c) specific teaching of alternative and desirable behaviour; and (d) the manipulation of contingencies to both promote positive behaviour and (on occasion) to reduce challenging behaviour (Dunlap, Sailor, Horner and Sugai, 2009).

Whilst PBS draws heavily upon the technical base of ABA, few longitudinal training programs in that specific discipline have been available to practitioners in Australia. With such limited access to the central technical aspects of PBS, questions must necessarily arise as to the technical integrity of subsequent assessment and intervention. Furthermore, the day-to-day implementation of interventions is frequently left in the hands of well intentioned, but poorly trained operational staff. Approximately 50 per cent of these staff have vocational training only, with a further 20 per cent never having completed a secondary qualification (Fordyce and Smith, 2011). In acknowledgment of this, and as a result of the technical acuity required of PBS, significant applied efforts are directed at the training of direct support personnel and their clinical colleagues alike.

Training in PBS should be systematically evaluated in order to monitor and measure benefit to people with intellectual disability, and support personnel alike. Such evaluation should be multi-layered, with the ultimate objective being an improvement in circumstances for people with intellectual disability. Kirkpatrick's (1959) model of four levels of evaluation remains one of the most influential approaches to training evaluation, and includes specific consideration of the actual impact of the training on the intended outcome. Level One evaluation essentially relates to participant satisfaction with the training. Level Two is interested in an evaluation of the actual learning that occurs as a result of the training. Kirkpatrick's Level Three evaluation refers to changes in behaviour; however, this level cannot be influenced by training alone. Behaviour change relies on both internal and external variables (such as contingent reinforcement), that largely relate to the working environment of the training participant, once the training has been completed. A training program can establish some of the pre-requisites for change; however, the dynamics of the employing organisation will ultimately decide whether employee behaviour changes as a result of training (Kirkpatrick and Kirkpatrick, 2006). This is an important consideration in the evaluation of any training activity, especially for training directed at teaching an approach that has practice change at its core (such as PBS). The organisation which seeks to train its staff must also actively establish those organisational contexts which will facilitate the implementation of both the values and clinical aspects of PBS. Kirkpatrick's fourth and final level of evaluation relates to the actual outcome of the training. As the objectives of PBS relate to both improvements in quality of life and reductions in the impact of challenging behaviour, both elements should be evidenced in any evaluation within Level Four.

The Functional Assessment and Positive Behaviour Intervention training course

This paper reports on an evaluation of the Functional Assessment and Positive Behaviour Intervention (FAPBI) training course run by the Centre of Excellence for Behaviour Support. The course is a four-day programmme, delivered to a range of disability service stakeholders including practitioners and operational personnel (such as disability support workers, team leaders, service coordinators and managers). The course is based on an action learning model, where participants conduct between session learning tasks in their place of employment. To allow for the completion of these activities, the four sessions are delivered across six to eight weeks. Course facilitators maintain contact with participants throughout these interim periods, providing support, clarification and mentoring as required.

The course curriculum is provided in a progressive style where each session builds upon the content learnt in the session before. Course details are presented in *Table 1.* The value base of Person Centred Practice serves to contextualise this material, and one half day of the course is dedicated to both Person Centred Planning and the United Nations Convention on the Rights of Persons with Disabilities. The objectives of the FAPBI course are: (a) to improve participant knowledge in PBS; (b) to teach trainees to use simple functional behaviour assessment tools; and (c) to translate learning benefits into a practical PBS plan.

Table 1: Details of the Functional Assessment and Positive Behaviour Intervention training course

Facilitators	Location	Course information		
		Day	Content	Between session activities
All course facilitators are postgraduate trained in health or the behavioural sciences and have extensive experience in operational service delivery within the disability and community services sector. A Board Certified Behaviour Analyst (BACB®) on staff shares facilitation and provides technical consultancy to other facilitators.	All of Queensland, Australia in both metropolitan and regional areas	1	• Person Centred Planning and the UNCRPD • Antecedent Behaviour Consequence chain • Functional Assessment – informant methods • Functional Assessment – observation methods • Workplace culture and contemporary approaches to the support of people with intellectual disability	• Review a Person Centred Plan for completeness • Collect direct and indirect functional assessment data
		2	• Data analysis • Summary Statements and Functional Hypotheses • Competing Behaviour Model (O'Neill et al, 1997)	Develop one or more data-based Functional Hypotheses
		3	• Competing Behaviour Model (O'Neill et al, 1997) • Implementation of plans	Develop one or more Competing Behaviour models, based on data
		4	• Reactive strategies • Developing PBS plans	None. Develop a PBS plan during the workshop

At the completion of the course, participants submit an evaluation folio which includes the method, raw data and hypotheses from a functional behaviour assessment. This functional behaviour assessment is typically conducted for an individual whom the trainee is currently supporting. A small number of detailed case studies are also available for this task where course participants are not able to conduct the assessment in an applied setting. A PBS plan is also submitted on a template developed by the Centre of Excellence for Behaviour Support and based on the critical elements proposed by O'Neill et al (1997). These elements include: an operational description of the challenging behaviour; a summary statement and Competing Behaviour Model diagram for each defined situation; setting event, antecedent, teaching and consequence strategies; regular routines and crisis management; and finally monitoring and evaluation. Course facilitators review the evaluation folio for completeness and congruency between assessment and plan.

The evaluation sought to consider those aspects of training outcome under the direct control of course facilitators delivering PBS training. These include staff satisfaction and trainer competence (Level One), improvements in attendees' theoretical knowledge (Level Two), and attendees' ability to apply knowledge in the development of a PBS plan. Whilst the final area of consideration does not fully relate to a Level Three evaluation as articulated by Kirkpatrick, the development of a PBS plan was seen as an indicator of attendee ability to transfer new knowledge into a practical tool that could be used within the work site. The authors were also keen to identify the impact of causal attributions for challenging behaviour and attitudes toward evidence-based practice exercised over participant outcome. The primary evaluation questions were:

1. Did participants increase their knowledge of PBS?

    (a) Which participant groups benefited most (or least) from training in PBS?

2. What was the quality of participant PBS plans?

3. Does PBS training influence pre-existing participant causal explanations for challenging behaviour?

4. Does attitude toward evidence-based practice influence training outcome?

Method

Participants

This evaluation of the FAPBI course was based on data collected from 234 participants who attended courses run throughout metropolitan and rural Queensland, Australia in 2012. A total of 14 courses were run in 2012 with attendees ranging from 8 to 32 participants per course (M = 16.71 participants). Ethical approval to use the data collected retrospectively for research purposes was provided by the University of Queensland's Behavioural and Social Sciences Ethical Review Committee (Approval No. 2013000604). The sample consisted of 170 females and 59 males (five unreported). Out of the 234 participants, 72.9 per cent completed the full four days of training. Age details were collected as a categorical variable, with 40.5 per cent indicating their age was between 31 and 45 years, followed by 46–60 years (31.4 per cent), 16–30 years (26.8 per cent) and 60 and over (1.4 per cent).

With regard to work role, 25.9 per cent of the sample were allied health professionals (psychologists, occupational therapists, etc), 24.6 per cent were direct support workers, 22.4 per cent were service managers, 20.6 per cent were service coordinators or team leaders, and 6.6 per cent indicated 'other' (such as educational staff). With regard to length of service, 39.9 per cent indicated 0–3 years working in the disability sector, 25.7 per cent indicated 8–15 years of service, 23.4 per cent indicated 4–7 years' service, 10.6 per cent indicated 16–30 years' service, and only one person (0.5 per cent) indicated more than 30 years' service within the disability sector. With regard to prior training on challenging behaviour and PBS prior to attending this course, 39.4 per cent indicated limited training (one or two short courses only), 24.8 per cent a fair amount of training (several courses), 23.5 per cent no formal training, 10.6 per cent detailed training (many courses, or coverage on a professional course), and only four participants (1.8 per cent) specified that they had received extensive training (specialism in the management of challenging behaviours or a similar level of training).

Materials

To aid effective evaluation of the course, a series of instruments were administered, with each measure linking to components of the Kirkpatrick (1959) method of evaluation.

Demographic survey

Participants were asked for information about their gender, age, current job role and length of experience working with people with intellectual disability, and the extent of their training on challenging behaviours. To assist in answering the extent of training question, 'training in challenging behaviour' was defined using the following examples: no formal training; limited training (one or two short courses); a fair amount of training (several courses); detailed training (many courses, or coverage on a professional course) and extensive training (specialism in the management of challenging behaviours or a similar level of training).

Workshop Evaluation Questionnaire

The Workshop Evaluation Questionnaire (WEQ) is a nine-item scale which rates participants' perceptions of outcomes of the training, competence of the trainers and general satisfaction (Milne and Noone, 1996, cited in Milne et al, 2000). Each item on the WEQ is typically rated on a four-point response format ranging from 0 (not at all) to 3 (very much); however, for the purposes of the present evaluation, a five-point option was provided, allowing participants to provide an 'unsure/neutral' response. The ratings on the nine items are summed together to create a total score. Given the modified rating scale, the total score for the WEQ for this evaluation ranged from 0 to 36. Use of the WEQ has previously been reported in reviews of training programs within disability (eg, Taylor, Keddie and Lee, 2003) and mental health services (Milne et al).

Knowledge Acquisition Test

A specific knowledge acquisition test was developed by the training staff. The test is based on the central elements of O'Neill et al (1997) which are broadly reflected in the PBS literature. The seven test items cover: (i) the objectives of PBS; (ii) behaviour chains; (iii) functions of behaviour; (iv) data collection methods; (v) topography and measurement; and, (vi) the Competing Behaviour Model (two items). The maximum raw score available on the Knowledge Acquisition Test is nine.

Challenging Behaviour Attribution Scale

The Challenging Behaviour Attribution scale (CHABA) (Hastings, 1997) is a 33-item scale with statements relating to five causal models of challenging behaviour: learned behaviour (six items – three each for Learned

Positive and Learned Negative); medical/biological factors (six items); emotional factors (seven items); aspects of the physical environment (eight items) and self-stimulation (six items). The questionnaire is not designed to be a measure of staff 'attributional style' as such, but is concerned with staff application of causal models of challenging behaviour in particular circumstances. These circumstances are described within a 'vignette' about challenging behaviour. The scale is rated on a five-point scale ranging from -2 (very unlikely) to +2 (very likely). A total score for each sub-scale is derived by summing the ratings on all of the items associated with the five causal models and dividing this score by the number of items in the sub-scale. A score below zero indicates that the respondent considers the particular causal model is unlikely to apply to the rated behaviour, and a score above zero suggests that the causal model is applicable to the rated behaviour. Hastings found moderate to good levels of internal consistency reliability of all sub-scales ($\alpha = .65$ to $\alpha = .87$).

The Behaviour Support Plan Quality Evaluation Guide, Version II (BSPQEII)

The BSPQEII (Browning-Wright et al, 2006) was developed by senior clinical staff within the Positive Environments Network of Trainers (PENT) in California. The development of the BSPQEII was based upon a review of 400 Behaviour Support Plans which had been identified as 'successful' (Browning-Wright et al, 2006, p. 5), and has been modified following extensive field-work and expert review. The BSPQEII is comprised of 12 domains, each scored on a Likert scale ranging from 0 to 2. Detailed scoring criteria and examples are provided per item, and the scale descriptors vary accordingly. Across all items, however, 0 generally relates to the total absence of a quality domain, whilst 2 equates to the substantive inclusion of the domain. Scores across the 12 domains are aggregated for a potential total scale score of 24. The authors provide threshold criteria for plan quality based on this aggregate: less than 12 points equates to a 'weak' plan that requires rewriting; 13–16 is an 'underdeveloped' plan likely requiring multiple modifications; 17–21 points is a 'good' plan that is likely to effect change; 22–24 points is a 'superior' plan which embodies best practice (Browning-Wright et al, 2006, p. 24). Psychometric properties of the BSPQEII include reliability using item-total correlations, internal consistency and inter-rater reliability statistics. The item-total correlations had an average of .59. Internal consistency was defined by a α of .80, which indicated sufficient internal consistency across the rating items. Inter-rater reliability was

calculated with a Pearson Product Moment Correlation between the pairs of scores for each item and total plan score. A correlation of .80 was obtained (Browning-Wright et al, 2007) thus defining the instrument as being consistent across raters. Similar psychometric properties have been reported by McVilly et al (2013).

The 12 BSPQEII items closely reflect the clinical requirements of ABA. In particular, items 1–9 seek to identify the presence of functional assessment; the identification of functional hypotheses; the modification of motivating operations; and the teaching of functionally equivalent replacement behaviours. The authors provide the important caveat that the BSPQEII is not able to confirm the veracity of the overarching functional hypotheses of a PBS plan. The tool is, however, able to assess the translation of the hypotheses across sequential plan domains.

Evidence Based Practice Attitude Scale (EBPAS-50)

The EBPAS-50 (Aarons et al, 2010) was developed in response to the view that attitudes influence the likelihood of adopting proven interventions. Whilst the FAPBI course does not seek to exercise direct influence over such attitudes, the authors were interested in the influence that such attitudes exercised over training outcome. The scale has recently been expanded from 15 to 50 items, which evaluate attitudes toward evidence-based practice. The items cluster into 12 domains (requirements, appeal, openness, divergence, limitations, fit, monitoring, balance, burden, job security, organisational support and feedback). Twelve subscale scores can be calculated along with an aggregate, total score. The EBPAS-50 is scored on a five-point Likert scale ranging from 0 (not at all) to 4 (to a very great extent). The EPBAS has been employed in researching attitudes of professional staff in disability and mental health services (eg, Stahmer and Aarons, 2009). The subscales of the EBPAS-50 exhibit acceptable internal consistency (ranging from $\alpha = .77$ to $\alpha = .92$) (Aarons et al, 2010).

Procedure

In the first session of the FAPBI training course, before any content was presented, the participants were asked to complete the Demographic Survey, the Knowledge Acquisition Test, the CHABA, and the EBPAS-50 (pre-training). These measures were also administered in the fourth and last session of FAPBI once all the content had been presented (post-training). In addition, the WEQ was also administered at the completion of the course. Throughout the training course, the participants completed a Functional Assessment and prepared a complete PBS plan. The complete plan was submitted for evaluation in the last FAPBI session. A pre-test/post-test design for assessing plan quality was not practical within the context of the present evaluation. Contemporary practice in Queensland dictates that PBS plans are developed by a multitude of services and consultants and as such, the plans being implemented by training participants would in many cases have been authored by a third party. A post-test only was considered the most practical and appropriate approach, despite its limitations.

The quality of the plan was assessed using the BSPQEII by one of the facilitators of the FAPBI course. The facilitator who conducted the course scored the plans submitted by the participants. All course facilitators have established good inter-rater reliability using a Spearman correlation, $r_s = .75$ to .80.

Statistical analysis

Descriptive statistical methods such as frequencies, means, medians and standard deviations were used to describe variables of interest. The Wilcoxon signed ranks test was used to assess for differences in knowledge (Knowledge Acquisition Test), attribution (CHABA) and attitude towards evidence-based practice (EBPAS-50) from pre- to post-FAPBI training. Mann–Whitney and Kruskal–Wallis tests were used to assess demographic group differences on knowledge (pre- and post-training) and behaviour support plan quality (BSPQEII scores). For these tests, the effect size r was reported if relevant.[1] Spearman correlations were used to assess associations (direction, magnitude)

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[1] $r = \dfrac{Z}{\sqrt{N}}$, where Z is the Z score calculated through the statistical test and N is the number of observations related to that statistical test (Rosenthal, 1994).

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between knowledge (pre- and post-training) and behaviour support plan quality, with attribution style and attitudes towards evidence-based practice (both pre- and post-training). Lastly, to compare the quality of behaviour support plans developed by this sample of participants, the mean total BSPQEII score for this sample was compared to a normative sample (reported by Webber et al, 2011) using a one sample t-test. Webber et al (2011) assessed the quality of a random sample of behaviour support plans submitted to the state government of Victoria, Australia. The BSPQEII total score is normally distributed, therefore allowing the use of a parametric statistical method (such as the one sample t-test). A conservative significance level of $\alpha = .01$ was adopted for these statistical analyses.

Results

Workshop Evaluation Questionnaire

Table 2 presents the descriptive statistics for the nine WEQ items. The statistics indicate that for the seven items rated on the scale ranging from *'strongly disagree'* to *'strongly agree'* (improved understanding, work skill development, confidence, implementation of learning, learning desirable information, meeting expectations, recommend training to others), the majority of participants rated that they *'agree'* or *'strongly agree'* with the statement. Mean responses fell within the *'agree'* category for all seven items. For the two items rated on the scale ranging from *'poor'* to *'strong'* (competent trainer and satisfaction with training), the majority of participants rated *'average'* or *'strong'* with mean responses falling within the *'average'* category.

Table 2: Descriptive statistics for the nine WEQ items

	For the items rated on a scale ranging from strongly disagree to strongly agree							
Item	N	M	SD	**Frequency (percentage)**				
				Strongly disagree (1)	**Disagree (2)**	**Unsure/ neutral (3)**	**Agree (4)**	**Strongly agree (5)**
1. This training improved my understanding of why behaviour occurs	181	4.23	0.91	0 (0.0)	16 (8.8)	10 (5.5)	72 (39.8)	83 (45.9)
2. This training helped me develop work-related skills	181	4.43	0.63	0 (0.0)	1 (0.6)	10 (5.5)	80 (44.2)	90 (49.7)
3. This training has made me more confident in my work	181	4.17	0.70	0 (0.0)	3 (1.7)	22 (12.2)	98 (54.1)	58 (32.0)
4. I expect to make use of this training at work	181	4.44	0.68	0 (0.0)	1 (0.6)	13 (7.2)	72 (39.8)	95 (52.5)
5. The training covered the topics I wanted	181	4.33	0.72	1 (0.6)	3 (1.7)	12 (6.6)	85 (47.0)	80 (44.2)
6. The training met its aims	181	4.40	0.60	0 (0.0)	0 (0.0)	11 (6.1)	86 (47.5)	84 (46.4)
7. I would recommend this training course to a colleague	163	4.46	0.65	0 (0.0)	0 (0.0)	14 (8.6)	60 (36.8)	89 (54.6)
	For the items rated on a scale ranging from poor to strong							
Item	N	M	SD	**Frequency (percentage)**				
				Poor (1)	**Satisfactory (2)**	**Unsure/ neutral (3)**	**Average (4)**	**Strong (5)**
8. How competent was the trainer in presenting the content of this course?	179	4.74	0.54	0 (0.0)	1 (0.6)	6 (3.4)	32 (17.9)	140 (78.2)
9. In an overall, general sense, how satisfied are you with the training?	180	4.52	0.68	0 (0.0)	4 (2.2)	7 (3.9)	60 (33.3)	109 (60.6)

Pre- and Post-FAPBI training differences

Knowledge

A Wilcoxon signed ranks test found a significant difference between scores on the Knowledge Acquisition Test pre-training and post-training, Z = -11.34, p < .001, r = -.60. Median and mean scores indicate that knowledge scores increased post-training (Mdn = 6.00, M = 5.96, SD = 1.89) in comparison to pre-training (Mdn = 2.00, M = 2.13, SD = 1.76). *Figure 1* presents a breakdown of knowledge scores pre- and post-training across the five work role categories. This figure highlights that knowledge increased across all work categories post-training.

Figure 1: Mean knowledge scores pre-FAPBI and post-FAPBI training across the five work role categories
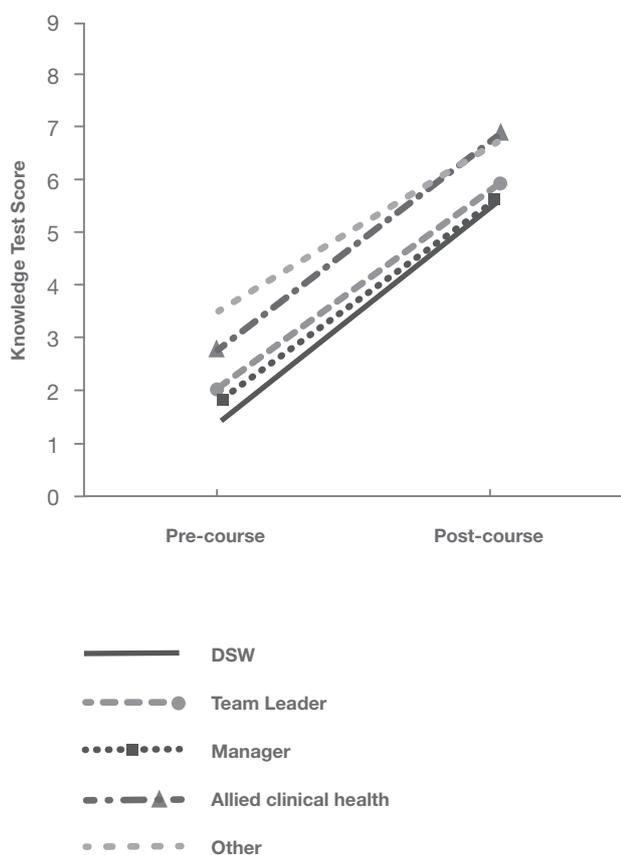
Attribution and attitudes towards evidence-based practice

Wilcoxon signed ranks tests were used to assess for differences pre- and post-training for the seven CHABA attribution subscales and the twelve EBPAS-50 attitudes towards evidence-based practice subscales (see *Table 3*). There were significant differences pre-and post-training for all the CHABA subscales except Emotional, with mean/median scores highlighting subscale scores increased post training. Mean/median post-training scores for Learned Behaviour and Learned Behaviour (Negative) changed response category in comparison to pre-training (from 0 [equally likely/unlikely] to 1 [likely]). There were significant differences pre-and post-training for only two of the EBPAS-50 subscales (Openness and Fit) with Openness and Fit increasing post-training. Mean/median scores post-training compared to pre-training did not change response category.

Behaviour Support Plan Quality (BSPQEII)

Throughout the four sessions of the FAPBI course, participants developed a complete PBS plan. The quality of this plan was assessed using the BSPQEII. The mean total plan score for the participants was 13.73 (SD = 3.64). This value is significantly higher than the mean total plan score (M = 10.90, SD = 3.20) reported by Webber et al (2011), t (179) = 10.41, p < .001.

Table 4 presents rating frequencies for each domain of the BSPQEII. For Domains A (definition of the problem behaviour) to F (function related to the replacement behaviour), the majority of the participants scored the highest possible quality rating (implying complete and accurate information presented). For Domains G (teaching strategies specify the teaching of the FERB), I (reactive strategies) and K (team coordination in implementation), the majority scored the middle quality rating (implying some information is present but not detailed/accurate enough). Lastly, for Domains H (reinforcers), J (goals and objectives) and L (communication regarding plan implementation), the majority of the sample scored the lowest quality rating (implying incomplete and/or inaccurate information).

Table 3: Wilcoxon signed ranks test results comparing CHABA and EBPAS-50 subscale scores pre- and post- FAPBI training

Subscale	Pre-FAPBI training			Post-FAPBI training			Wilcoxon test		
	CHABA								
	M (SD)	*Mdn*		*M (SD)*	*Mdn*		*Z*	*p*	*r*
Biological	0.57 (0.59)	0.50		0.74 (0.60)	0.67		-2.70	.007	-.14
Physical environment	0.49 (0.62)	0.50		0.79 (0.65)	0.75		-5.10	< .001	-.27
Learned behaviour	0.91 (0.54)	0.83		1.18 (0.57)	1.17		-5.32	< .001	-.28
Learned behaviour (Positive)	1.03 (0.62)	1.00		1.23 (0.61)	1.33		-3.67	< .001	-.19
Learned behaviour (Negative)	0.80 (0.63)	0.67		1.13 (0.64)	1.00		-5.60	< .001	-.30
Stimulation	0.46 (0.63)	0.33		0.67 (0.65)	0.67		-3.67	< .001	-.19
Emotional	0.99 (0.54)	1.00		0.98 (0.58)	1.00		-0.65	.516	-.034
	EBPAS-50								
	M (SD)	*Mdn*		*M (SD)*	*Mdn*		*Z*	*p*	*r*
Requirements	3.06 (0.90)	3.00		2.96 (0.93)	3.00		-0.82	.415	-.042
Appeal	3.26 (0.58)	3.25		3.24 (0.59)	3.25		-0.18	.855	-.001
Openness	3.06 (0.63)	3.00		3.21 (0.57)	3.25		-2.95	.003	-.16
Divergence	0.82 (0.57)	0.75		0.75 (0.59)	0.75		-1.52	.130	-.083
Limitations	0.49 (0.64)	0.17		0.38 (0.56)	0.14		-2.29	.022	-.13
Fit	2.61 (0.86)	2.71		2.80 (0.79)	2.86		-2.75	.006	-.15
Monitoring	0.65 (0.81)	0.25		0.72 (0.85)	0.50		-0.93	.354	-.051
Balance	1.86 (0.72)	1.75		1.94 (0.67)	2.00		-1.59	.111	-.088
Burden	0.52 (0.64)	0.25		0.52 (0.63)	0.25		-0.076	.940	-.004
Job security	2.04 (1.18)	2.00		2.20 (1.17)	2.33		-1.79	.073	-.10
Organisational support	2.54 (0.83)	2.67		2.70 (0.88)	2.67		-2.19	.029	-.12
Feedback	3.38 (0.73)	3.67		3.40 (0.65)	3.67		-0.15	.879	-.008

Table 4: Rating frequencies for each domain of the BSPQEII

Domain	Rating	Frequency	Percentage
A – Problem behaviour	No problem behaviour(s) in observable and measurable terms (0)	11	6.1
	Some problem behaviour(s) are not observable and measurable (1)	30	16.7
	All problem behaviour(s) are observable and measureable (2)	**139**	**77.2**
B – Predictors/triggers of problem behaviour	No predictors of problem behaviour (0)	2	1.1
	One or more predictors provided but no detail (1)	35	19.4
	One or more predictors provided with detail (2)	**143**	**79.4**
C – Analysis of what supports the problem behaviour is logically related to predictors	None of the predictors are logically related to the behaviour (0)	14	7.8
	Less than half are logically related to the behaviour (1)	33	18.3
	Half or more are logically related to the behaviour (2)	**133**	**73.9**
D – Environmental change is logically related to what supports the problem behaviour	No environmental changes described (0)	15	8.3
	One or more changes mentioned but not logically related (1)	34	18.9
	One or more changes mentioned and logically related (2)	**131**	**72.8**
E – Predictors related to the problem behaviour	No functions specified, and contaminators present (0)	5	2.8
	All identified functions but not logically related, and no contaminators present (1)	13	7.2
	All identified functions specify WHY and logically related (2)	**162**	**90.0**
F – Function related to the replacement behaviour	No functionally equivalent replacement behaviour (FERB) identified (0)	32	18.0
	All specified FERB serve same function as problem behaviour and no functional contaminator (2)	**142**	**82.0**
G – Teaching strategies specify the teaching of the FERB	No strategies described (0)	47	26.3
	Some strategies described with at least one element of detail, and no contaminators (1)	**95**	**53.1**
	Teaching strategies with more than one detail described (2)	37	20.7
H – Reinforcers	Contaminator is present or incomplete detail (0)	**127**	**70.6**
	Reinforcer for FERB incomplete (1)	30	16.7
	Reinforcer for FERB is complete (2)	23	12.8
I – Reactive strategies	A strategy for managing at least one problem safely absent, or a contaminator present (0)	52	28.9
	A strategy for managing at least one problem safely must be present and no identified contaminator (1)	**87**	**48.3**
	A strategy for managing at least one problem safely must be present and no contaminators (2)	41	22.8
J – Goals and objectives	No complete goal (0)	**180**	**100.00**
	One incomplete goal & FERB identified (1)	0	0.00
	One or more FERB goal (2)	0	0.00
K – Team coordination in implementation	No responsibilities or team members identified (0)	33	18.3
	Not all implementers or not all responsibilities identified (1)	**94**	**52.2**
	All implementers and responsibilities identified (2)	53	29.4
L – Communication of progress with plan implementation	Absence of data exchange (0)	**178**	**98.9**
	One data exchange for any one specified goal (no complete exchange)	2	1.1
	FERB data with all components present will be exchanged (2)	0	0.00

Note. Figures in bold typeface represent the category with the highest frequency

Do knowledge, attribution and attitudes towards evidence-based practice influence attendance levels?

A Mann-Whitney test found no significant difference in pre-training knowledge for those who completed the full FAPBI training ($Mdn = 2.00$, $M = 2.15$, $SD = 1.66$) and those who did not ($Mdn = 1.00$, $M = 1.81$, $SD = 1.66$), $U = 4192.00$, $Z = -1.63$, $p = .104$, $r = -.11$. Differences between full attendees and partial attendees were also examined for pre-training attribution styles (CHABA) and attitudes towards evidence-based practice (EBPAS-50). No significant differences were found.

Discussion

Whilst self-reports of participant satisfaction provide only limited information as to training outcome, they represent the primary source of participant feedback in the present evaluation. Such feedback is of significance in clarifying perceived training need and identifying the degree to which participants felt such need was met (Kirkpatrick and Kirkpatrick, 2006). Any limitation in addressing self-reported training need would represent a significant practical concern for an agency seeking to lead practice improvement, such as the Centre of Excellence for Behaviour Support. The Centre's training agenda is both longitudinal and hierarchical, with a number of more advanced courses being available to graduates of the Functional Assessment and Positive Behaviour Intervention training course. Participant satisfaction with the base course no doubt exercises influence over willingness to attend subsequent programs, and as such is a variable of significant importance not only to the evaluation of FAPBI, but in the Centre's capacity to deliver its overarching training strategy. The cumulative positive responses (ie, the sum of response options four and five on the WEQ), reflecting 'recommending the course to a colleague' (91.4 per cent), 'trainer competence' (96.1 per cent), and 'overall satisfaction' (93.9 per cent), represent not only positive reactions to the current training deliverable, but a potential source of ongoing perceived value of the Centre's activities that ultimately benefits the overall training strategy. Simply, participants who have subjective positive reflections on contact with the Centre may be more likely to engage in future professional development activities.

1. Did participants increase their knowledge of PBS?

Changes in specific PBS knowledge are more directly associated with training outcome, and the statistically significant gain in technical awareness is an important finding of this evaluation (see also Wills, Shephard and Baker, 2013). Importantly, such advances were observed across all participant groups with close to parallel trend lines. This highlights several distinct points. Firstly, despite highly variable prior academic achievement, direct support workers are able to substantially increase their technical acuity. As it is these change agents who are most commonly entrusted with the implementation of PBS, evidence of increased technical capacity is of particular importance to this group. Second, whilst clinicians arrived at the FAPBI training course with greater pre-existing knowledge than their colleagues, knowledge limitations were both initially apparent and successfully ameliorated. Such knowledge increases should be expected to aid in the development of more technically complete PBS plans. It also highlights the important support and mentoring role that clinical staff play in collaborating with their direct support worker colleagues. Whilst direct support workers also gained knowledge, the gap between them and their clinical colleagues remained post training. The roles of the two workforce groups continue to appear overtly synergistic, providing some evidence for the maintenance of a clinical/practice leadership framework in operational disability service provision.

2. What was the quality of participant PBS plans?

The overall mean participant score of 13.73 requires careful consideration. Relatively scant normative data on BSPQEII scores is available, hindering comparison of this measure of training outcome to other programs or jurisdictions. In Australia, the Webber et al (2011) data is of relevance as it was collected in a jurisdiction which, like Queensland, seeks to remediate the use of restrictive practices via the statutory obligation to develop a PBS plan. Against this relatively limited point of reference, plans developed as a result of the FAPBI training course reflect favourably. Further, the course is based on the well-regarded handbook presented by O'Neill et al (1997) and its content derived from that publication, not the BSPQEII. As such, items J (Goals and Objectives) and L (Communication) of the BSPQEII were not taught to participants at all, whilst item H (Reinforcement) was not taught to the detail required of the tool.

3. Does PBS training influence pre-existing participant causal explanations for challenging behaviour?

Of particular interest to the authors is the increased endorsement of causality related to learning, including both positive and negative reinforcement. It has been the authors' experience that effectively training operational staff in reinforcement, and particularly negative reinforcement (see also Hastings, 1997), can be problematic and significant results in both sub-domains is pleasing. However, the fifth category of the CHABA, (emotional) showed no change pre- to post-test. The training course did not seek to explore emotional or psychological aspects that can be attributed to challenging behaviour, and the results show no change in such attribution. Indeed, emotional contributors to challenging behaviours may be considered 'functional contaminants' as they are not (behaviourally) observable or measurable (Browning-Wright et al, 2006; see also 'mentalism', Cooper, Herron and Heward, 2007). A reference to functional contaminators hinders conceptual clarity of the functional hypotheses, ultimately undermining case formulation and intervention. That disendorsement of the emotional category did not occur, in light of such significant changes within the other categories, is again consistent with the Centre of Excellence for Behaviour Support's experience training both operational and clinical staff alike.

4. Does attitude toward evidence-based practice influence training outcome?

Somewhat surprisingly, there was no observed influence of attitude toward evidence-based practice on any evaluation outcome. This provides useful information for course development and barriers/enablers of participant learning and skill outcome. The present evaluation did not, however, consider the impact of this attitudinal domain on implementation of PBSs, nor the influence of such over staff responses to challenging behaviour. Further consideration of attitudes toward practices such as PBS in the applied support of people with intellectual disability may continue to be warranted.

Conclusion

The delivery of training courses in PBS is critical to ensure that the benefits evidenced of the discipline are available to people with intellectual disability. These benefits will, however, only be available if training providers systematically critique the outcomes of their endeavours. Whilst the present evaluation indicated strong support for the FAPBI training program, an explicit consideration of the 'positive' aspects of PBS was absent from the review methodology. Both the BSPQEII and the Knowledge Acquisition test developed for this evaluation seek to consider domains related to ABA, regardless of the use of aversive or punitive procedures. For both applied clinical audit, and for future evaluation of PBS training programs, a mechanism for quantifying the adherence to the PBS values base is important. Foundational work for this style of audit has been provided by authors such as French et al (2010) and Weiss and Knoster (2008). Application of this area of critical review should be considered significant in the future evaluation of the clinical integrity of PBSs.

The evaluation of the 2012 FAPBI training program has provided positive and informative data; however, the focus on participant outcome rather than the outcome for people with intellectual disability is inherently problematic. This unanswered question essentially relates to Kirkpatrick's fourth level of evaluation, 'results' (Kirkpatrick and Kirkpatrick, 2006). Future evaluations of PBS training outcomes must progress toward interrogating the transfer of learning to the applied delivery of disability supports. This transfer may usefully be conceptualised as the mediating variable of interest in delivering the two primary outcomes of PBS: the improved subjective wellbeing of people with intellectual disability and a reduction in the impact of any challenging behaviour.

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