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**Outcomes of Staff Training in Positive Behaviour Support: A Systematic Review**

**Background**

Challenging behaviour is prevalent in people with learning disabilities (Emerson et al, 2001) and has been demonstrated to have a number of negative effects on services, staff and service users (Allen, 2009) , including abuse (Emerson et al, 1994), placement breakdown (Allen, 1989), and high staff turnover (Felce, 1993).

Positive Behaviour Support(PBS) has been shown to be successful in addressing issues of challenging behaviour and of achieving behaviour change for individuals (Carr et al, 1999; Lucyshyn et al, 2002; La Vigna & Willis, 2012). ). It came to the fore in the 1980’s & 1990’s and has grown from its origins in Applied Behaviour Analysis (ABA), from where it has borrowed a range of assessment and intervention strategies, to incorporate principles of person-centred planning and normalisation (Carr et al, 2002; Dunlap & Carr, 2009).

Some controversy remains about the definition of PBS, and whether it is in fact a separate discipline from ABA. For example, Carr et al (2002) defined it as “an applied science that uses educational and systems change methods to enhance quality of life and minimise problem behaviour” (p.4), and Horner (2000) as “an approach that blends values about the rights of people with disabilities with a practical science about how learning and behaviour change occur” (p.97). However others have questioned this definition and queried whether PBS is indeed a science, and in particular whether it is separate from ABA. Wacker & Berg state for example, “we are not sure that any definition of science could be used to categorize PBS as an applied science that is distinguishable from the scientific methods from which it is derived” (p. 25). Johnstone et al (2005) conclude in their examination of PBS that “it is difficult to characterize PBS in ways that will not invite disagreement” (p.69).

However, despite these controversies, there are a number of elements of PBS which are largely agreed within the PBS literature. In 1990, Horner & colleagues published what is regarded as the first clear definition of PBS – although at this point they called it ‘non-aversive behavioural support’. They emphasised 9 main characteristics: has an emphasis on lifestyle change; based on functional analysis; utilises multi-element support; focuses on ecological changes; emphasises antecedent control; teaches new skills; uses contingent and non-contingent reinforcement; minimises use of aversive approaches; utilises proactive and reactive approaches.

In 2002, Carr & colleagues added to this definition with their influential article “Positive Behavior Support: Evolution of an Applied Science”. In this, the additional characteristics of PBS were spelled out and defined. These additional characteristics were defined as: lifespan perspective or a long-term focus; stakeholder participation; systems change; flexibility with respect to scientific practices and willingness to utilise other theoretical perspectives. After Carr et al (2002), the majority of PBS writings reflect these definitions (e.g. Dunlap. 2004; Allen et al, 2005; La Vigna et al, 2005; Kincaid, 2006).

Despite the apparent effectiveness of PBS in addressing challenging behaviour (Carr et al, 1999), its use remains limited in services for people with intellectual or developmental disabilities. In a study of 500 people with learning disabilities living in residential support in the UK, only 15% were recipients of any kind of behaviour programmes (Emerson et al, 2000). It is not clear from this study if these programmes were PBS based; however the findings indicate the low use of any kind of behavioural programme. Allen et al (2005) propose a number of possible reasons for the low level of PBS use: the labour-intensive nature of interventions; a bias against ABA type approaches in community care settings; lack of specialist staff trained in PBS; and no statutory requirement within community care settings for PBS to be provided for individuals that challenge. A further reason for low level of use could be the lack of care staff skills in implementing PBS interventions.

Training of staff teams to use PBS is therefore important for a number of reasons. Firstly, despite the effectiveness of PBS, restrictive and aversive practices continue to be used (Deveau & McGill, 2009; Emerson et al, 2000). The risks associated with restrictive physical intervention are clear (e.g. Leadbetter, 2002). Studies also indicate a potential over-dependence on psychotropic medication to manage behaviour; in one study service users were three times more likely to receive anti-psychotic medication than behaviour support (Emerson et al, 2000), despite a lack of evidence for its effectiveness (Tyrer et al, 2008). In comparison with either of these approaches, PBS is non-intrusive and likely to be regarded as least restrictive; there is therefore an ethical and good practice obligation to use it rather than other approaches.

Secondly, creating skilled and confident staff teams who can implement PBS plans with accuracy and consistency may enable challenging individuals to be supported in ordinary community care settings and therefore minimise the need for expensive, often out-of-area, specialist placements. It is likely that these models of support do not allow for the building of skills and competencies within the individual’s home environment and by the primary caregiver, most likely either a social care provider or family (DOH, 2007).

Thirdly, creating skilled local staff teams is likely to be a positive alternative to relying on external specialist additional support teams. These specialist support teams who typically provide assessment and intervention input to individuals within their own environment are one alternative to specialist residential placements. These have been shown to be effective (Hassiotis et al, 2009) and are recommended in the UK government’s good practice guidance ‘Services for People with Learning Disabilities and Challenging Behaviour or Mental Health Needs’ (DOH, 2007). However there are also limitations to the resources of specialist teams – McClean et al (2005) reported that only 48% of people with severe challenging behaviour are on team caseloads. The number of specialist teams required to roll out PBS to all the individuals who might benefit from it is not likely to be available (Sprague et al, 1996). Training service providers’ direct care staff in PBS may therefore address issues of coverage.

The objective of this review is to summarise the results from published studies in the last 20 years regarding outcomes of PBS staff training in relation to either children or adults with learning disabilities. Studies which include either outcomes for staff (e.g. changes in knowledge or skills) and/or outcomes for service users (e.g. changes in rate or severity of challenging behaviour, impact on quality of life, reductions in use of restraint) will be considered.

**Method**

Identification of Literature

Searches of Google Scholar and of electronic databases (Web of Science, Pub Med, and PsychINFO) were conducted in October 2012 to identify relevant studies, published in English from 1990 onwards. In each database searches were made firstly for “positive behav\* support”, and then with additional search terms such as “training” and “learning disab\* OR intellectual disab\*”. Following this, searches were also made under “challenging behav\*” with the same additional search terms added in.

In addition to these initial searches, reference lists of studies found by the initial search were then accessed and their relevance assessed. Finally, Web of Science and PsychINFO were used for citation searches in order to identify further studies citing those already identified.

All studies were assessed for relevance by reading the description of the training provided. If the study described the training as PBS then the study was included.

Inclusion Criteria

Studies were included that described outcomes from PBS staff training. If the study identified itself as providing staff training in PBS then this was accepted – that is, the description of the training was not analysed or assessed as to what exactly it covered; self-identification as being PBS was sufficient. The reason for this inclusion criterion is that, as noted above, there remains some controversy over definitions of PBS, in particular whether it is a separate entity from ABA. Thus rather than attempt to define PBS & differentiate it from ABA (an exercise beyond the scope of this current study), it was decided to conduct this review based on studies that describe themselves as providing staff training in PBS.

Participants for the studies in this review were individuals with intellectual disabilities and challenging behaviour, and/or the staff that provide their support. Studies only relating to outcomes for family carers were therefore not included, although some studies that report outcomes for both staff and family carers were.

Due to the limited number of studies found, criteria for inclusion were kept wide, i.e. any type of format or design of training in PBS; training of any length; any type of research design, including with or without control groups, with or without reliability measures.

No limitations were placed on type of outcome measures – whether based on outcomes for staff or for service users.

Included & Excluded Studies

The criteria stated that the term “Positive Behaviour(al) Support” had to be used somewhere within the study to describe the training; this was most commonly (but not always) in the method section where the training was described. However, Baker (1998), for example, does not mention PBS in his method section where he includes a table showing the content of the training sessions; however, within the introduction to the article, he states that his purpose is to “provide...training...on positive behavioral support strategies”, and therefore this study is included.

Some studies referred to PBS as part of the general approach of the agency or unit where the training took place, but these studies did not meet the criteria as the training reported on within the study was not identified as PBS. For example, Allen et al (1997) discussed the use of PBS within their unit and made reference to the La Vigna multi-element model (1989); however the study described behaviour management training with a focus on reactive strategies and therefore it was excluded. Likewise, the later study, Allen & Tynan (2000), was excluded for similar reasons. Tierney et al (2007) refer to the fact that they discussed the importance of using PBS plans within their training session, yet the title of their training is “Understanding and Responding to Challenging Behaviour”; this study was therefore excluded as it was not describing training in PBS.

Studies using closely related terms were not included. For example, Grey et al (2002) use the term “multi-element behaviour support” to describe their training; despite this being a term which is sometimes used to describe PBS (for example in McClean et al, 2005 & Dench, 2005, the terms are used inter-changeably), since PBS is not mentioned specifically within this article, then this study is excluded.

Another notable exclusion is the study by La Vigna et al (2002) in which they describe outcomes from their Summer Institute training which provides intensive training in their “multi-element treatment model”. Although Dr La Vigna has been a major contributor to the development and definition of PBS, and although it is likely that the content of the training described in this study would fit most definitions of PBS, since it is not self-identified as PBS, it is not included.

Following the search process outlined above, studies were identified as being part of the review. In order to provide a reliability check, the second author independently carried out a check on the included and excluded studies using the specified criterion. There was 100% agreement with the inclusion and exclusion decisions of the first author.

**Results**

Studies meeting the above criteria were summarised into a table with information about author, date of publication, country where research was conducted, participants involved, sample size, design of study, outcome measures, reliability and results. This information is summarised in Table 2 below, in chronological order starting with the oldest studies first.

Although there is extensive research on generic challenging behaviour training available, there is a limited literature published regarding outcomes of PBS training. 14 studies were identified by this review – 4 from Ireland, 5 from the US, 3 from the UK, 1 from Canada, and 1 from Australia. Table 3, below, shows the length, format, and content of the training.

Table 2: Details of Included Studies

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author(s)** | **Year**  | **Country**  | **Participants**  | **Sample Size** | **Design & Data Collection** | **Outcome Measures**  | **Reliability** | **Results** |
| Baker\*\*\* | 1998 | US | Managerial & direct care staff from residential & vocational support unitService users on whom training was focused | At least 16 staff5 service users | Repeated measures design: review of FA & Behaviour Support Plan (BSP) pre & post training; incident reports completed pre & post training, during a 2-month period | FA & BSP were reviewed against ‘critical elements’ (4 for FA & 6 for BSP)Incident reports  | Coding was checked for 50% of FA & BSP (93-96% agreement)CB reliability was assessed via comparison with house logs (100% agreement) | The number of FA & BSP with at least 4 critical elements significantly increasedIn 2 months post training, CB for 2 service users reduced to 0; others reduced to between 11-28% of baseline |
| Reid et al\*\* | 2003 | US | Supervisors of direct care staff | Experimental 12 | Repeated measures within & between groups design | Observation of role-play demonstration of 2 supervisory skills | Inter-observer agreement checks on 46% of observations (95% agreement) | Pre-training 0-33% met criteria; post training 100% |
| Implementation 386 | Post training evaluation of skill | Paper exercise evaluation (17 modules); role-play evaluation (9 modules); & on-the-job checks (6 modules) | None reported | 85% completed all training & achieved mastery level |
| Freeman et al\*\* | 2005 | US | Professionals working in human services with bachelor’s degree | 11 | Repeated measures design, PBS experts score BSP pre & post training | 37-item PBS Checklist (based on Horner et al, 2000)  | None reported  | 10 PCP & 9 BSP produced; scores on both checklists increased from 48% pre training to 73% post training |
| McClean et al\* | 2005 | Ireland | Service users whose staff were on the training course | 138  | Repeated measures design; staff recordings of target behaviour at 3 time points, baseline, intervention & follow-up (between 4-8 week periods) | Behaviour recordings | Inter-rater reliability checks for 1 week during baseline only for 21 cases (92% agreement) | Significant improvement in 77%, at average follow-up of 22 months (3 months – 5.5 years) |
| Dench \*\*\* | 2005 | Ireland | Students undertaking the course Service users – focus person for the course | 38 staff25 service users | Post training assessment of FA & BSP Staff recording of target behaviour at baseline & post training; pre & post questionnaire re quality of life  | Behaviour Assessment Report & Intervention Plan Evaluation Instrument (Willis & La Vigna, 1990)Behaviour recordings; Quality of Life Questionnaire (Schalock & Keith, 1993) | None reported | 91.7% scored across all 7 categories on the Evaluation InstrumentCB reduced to less than 30% of baseline within 3 months for 56%; questionnaire did not demonstrate changes in quality of life;  |
| McGill et al\*\* | 2007 | UK | University Diploma students | 79 | Repeated measures design: questionnaires completed at 3 time points, beginning middle & end of course | Self-Injury Questionnaire (SIBUQ) (Oliver et al, 1996) ; Challenging Behaviour Attributions scale (CHABA) (Hastings, 1997) ; Emotional Reactions to Challenging Behaviour scale (ERCB) (Mitchell & Hastings, 1998); vignettes | 5% of data repeated entry to check reliability (95% agreement)Independent rating of 15-23% of vignettes (91% agreement) | Knowledge significantly increased; negative emotional responses reduced; SIBUQ very significant increase of correct attributions; CHABA no change |
| Lowe et al\*\* | 2007 | UK | Registered & non-registered staff in specialist health services | 275 | Repeated measures design: self report questionnaire & knowledge test pre & post training and at 1 year follow-up | ERCB; CHABA; Challenging Behaviour Staff Perceptions Questionnaire (CBSPQ) (Hastings & Brown, 2002) ; Confidence in Coping with Patient Aggression (CCPA) (Thackery, 1987); knowledge questions | Inter-assessor reliability for 25% (86% agreement) | Significant increase in knowledge for both groups; initial changes in attributions after training reverted to baseline over time; lasting increases occurred in confidence for both group; limited impact on fear/anxiety or depression/anger scale  |
| Grey & McClean \* | 2007 | Ireland | Service users whose staff were on the training course | 60 | Non-randomised matched control group, repeated measures design; CCB completed by one staff member pre & post training ; staff completion of behaviour observation records for target group only, pre & post training | Behaviour observation recordings (target group only); Checklist for Challenging Behaviour (CCB) (Harris et al, 1994); prescription of psychotropic medication | 43% of CCB were completed by 2 staff to check inter-rater reliability (correlation co-efficient range 0.8-0.92) | Significant differences between the groups post-training in frequency, management difficult & severity of behaviour (on CCB)For 66% of the target group the frequency of CB reduced to below 30% of baseline after 3 months post implementation (behaviour recordings)No significant reduction in units of medication prescribed for either group |
| Browning-Wright et al\*\* | 2007 | US | Behaviour specialists | 169 | Repeated measures design: data collected after training 1, and after training 2, via scoring of completed BSP  |  Behavior Support Plan Quality Evaluation Guide (BSP-QE) (Browning-Wright et al 2003) used to score each BSP  | Reliability of BSP scoring checked by 2 raters scoring each BSP & then comparing to agree final score | Participants were 4 times more likely to develop PBS plans rated *good* or *superior* post training 2 compared to post training 1 |
| Kraemer et al\*\* | 2008 | US | Education staff on special education course | 22 | Repeated measures design: scoring of BSP pre training & one month post training | BSP-QE | Inter-rater reliability was calculated (Pearson’s product-moment correlation =0.78) | Pre training average score 17 (*good*); post training average 21.06; *superior* plans increase from 0 to 9 |
| Gore & Umizawa \*\*\* | 2011 | UK | Teaching staff | 33 staff37 children | Repeated measures design:; all measures completed by participants pre &post training; CCB post data collection was 1 month after training   | CHABA; ERCB; CCB+ see note below | None reported | CHABA – no significant differences; ERCB – significant decrease on fear/anxiety scale, no other significant differencesCCB – one month after training significant decrease in frequency but not in severity or management difficulty for staff (difference between staff & family carer results) |
| Reynolds et al \* | 2011 | Canada | Children whose parents & staff attended training | 35  | Repeated measures design, pre & post training | Aberrant Behavior Checklist (ABC) (Aman & Singh, 1986)+ see note below | None reported | Significant improvements reported by staff in the total ABC score |
| McClean & Grey\*  | 2012 | Ireland | Service users whose staff were on the training course | 61 | Repeated measures design: 3 data collection points – baseline, post training & follow-up (average 26 month follow-up) | Challenging Behaviour Rating Scale (CBRS) (based on Checklist for Challenging Behaviour, Harris et al, 1994); behaviour recordings | CBRS completed by 2 staff at baseline & post training (Pearson’s correlation coefficient range 0.8-0.9) | Significant reduction in frequency, management difficulty & severity in the CBRS; behaviour records showed an average decrease of 61% at 3 months |
| Crates & Spicer\*\*\* | 2012 | Australia | Professionals working in disability services & the service users that they completed the training for | 32 staff32 service users | Post training evaluation of assessment ; repeated measures design for behaviour; 2 data collection points – baseline and 3 months post-training;  | Assessment & Intervention Plan Evaluation Instrument (AIEI) (La Vigna et al, 2005) | Inter-rater reliability checks for marking of 62% of reports – 85%; mean reliability for behaviour occurrence & severity was at least 84% | Mean score on AIEI was 79.5%Reduction in occurrence of behaviour at 3 months for 29/32 (mean change was 49.6% of baseline); 27/30 showed reduction in severity at 3 months (mean change was 30.8% of baseline) |

+A variety of measures were used in relation to family carers, but these are not reported here, as this review only considers outcomes for staff and service users

Key:

 \* Service user outcomes only

 \*\* Staff outcomes only

 \*\*\* Both staff & service user outcomes

Table 3: Length, Format & Content of Training

|  |  |  |
| --- | --- | --- |
| **Study** | **Length & Format of Training** | **Content** |
| Baker (1998) |  3x 3-hour sessions one month apart; inter-session assignments  | Completing FA; developing & implementing Behaviour Support Plan (BSP) for focus person |
| Reid et al (2003) | Experimental group: length not specified; role-play teaching for specific skillsImplementation group:5 days over 5 weeks (day 4 was on-the-job training | Experimental: 2 modules (teaching staff a PBS-related skill & carrying out a staff observation)Implementation: Skills related to PBS; 26 module curriculum |
| Freeman et al (2005) | 10 hours/ week over 1 year; online & monthly classes; online & practice-based assignments; portfolio | Person-centred planning, FA & BSP for focus person |
| McClean et al (2005) | 9 days over 6 months in 5 blocks; 4 inter-session assignments | Person-focused training in multi-element PBS; completing FA & implementing BSP & Periodic Service Review (PSR) |
| Dench (2005) | 9 days over 9 months in 6 blocks; 5 inter-session assignments  | Person-focused multi-element PBS; completing FA & implementing BSP for focus person & PSR |
| McGill et al (2007) | 57 days over 2 years; part-time University Diploma; practice-based assignments to implement in workplace  | ABA: Active Support (AS); FA; multi-element PBS |
| Lowe et al (2007) | 80 hours teaching over 10 consecutive days: portfolio; mentored by unit managers; 5 on-the-job observations  | AS; PBS |
| Grey & McClean (2007) | 9 days over 6 months in 5 blocks; 4 inter-session assignments  | Person-focused training in multi-element PBS; completing FA & implementing BSP & PSR |
| Browning-Wright et al (2007) | 1 day | Group 1: 6 key concepts of PBS; group 2: 6 concepts, plus how to rate BSP  |
| Kraemer et al (2008) | 1 day | 6 key PBS concepts plus rating BSP |
| Gore & Umizawa (2011) | 2x 4-hour sessions; session 1 repeated twice, delivered separately to staff & family carers; session 2 was joint | Functions of behaviour; communication; recording behaviour; developing proactive & reactive strategies |
| Reynolds et al (2011) | 3 full days & 2 half-days training over 7 weeks; training took place in teams of staff & family carers, focused round one child | Behavioural theory; functional assessment; designing BSP; data collection; crisis intervention |
| McClean & Grey (2012)  | 9 days over 6 months in 5 blocks; 4 inter-session assignments  | Person-focused training in multi-element PBS; completing FA & implementing BSP & PSR |
| Crates & Spicer (2012) | 4 consecutive days then an additional 9 days over 9 months involving 3 practice-based assignments  | Multi-element model; functional assessment; positive programming; focussed support; reactive strategies |

The studies vary as to whether they focus on staff outcomes (6), service user outcomes (4), or both (4). In order to consider the studies and their outcomes in more detail, the 14 studies have been split into those including results for staff and those including results for service users.

Staff Studies

Participant numbers for the 10 studies that included staff outcomes ranged from 11 - 386 (11, 16, 22, 32, 33, 38, 79, 169, 275, 386). Participants included staff from a residential and vocational support unit; staff from community services, including residential, day-support and specialist; professionals with a bachelor’s degree; direct-care staff; students undertaking a university diploma; students undertaking a distance learning course; nurses; behaviour specialists, teachers and unregistered staff from specialist health resources.

Outcome measures used in each study to evaluate different variables are outlined in Table 4 below:

Table 4: Staff Outcome Measures

|  |  |  |
| --- | --- | --- |
| **Variable Measured** | **Outcome Measures** | **Studies Reporting** |
| Emotions  | Emotional Reactions to Challenging Behaviour scale (ERCB) (Mitchell & Hastings, 1998) | Lowe et al(2007) & McGill et al (2007); Gore & Umizawa (2011) |
| Attributions  | Challenging Behaviour Attributions questionnaire (CHABA) (Hastings, 1997) | Grey et al (2002); Lowe et al(2007) & McGill et al (2007); Gore & Umizawa (2011) |
| Causal Attributions for Challenging Behaviour Scale (CACBS) (unpublished master’s thesis, Berryman, 1991) | Berryman et al (1994) |
| Confidence  | Confidence in Coping with Patient Aggression Instrument (CCPAI) (Thackery, 1987) | Lowe et al (2007) |
| Challenging Behaviour Staff Perceptions Questionnaire Self-efficacy (CBSPQ) (Hastings & Brown, 2002) | Lowe et al (2007) |
| Knowledge  | Knowledge-based questionnaire | Lowe et al (2007) |
| Vignettes on behavioural function | McGill et al (2007) |
| Self Injury Understanding (SIBUQ) (Oliver et al, 1996) | McGill et al (2007) |
| Skills | Completion of FA and implementation of BSP | Baker (1998); Freeman et al (2005); Dench (2005); Crates & Spicer (2012) |
| Carolina Curriculum on Positive Behavior Support  | Reid et al (2003) |
| Behaviour Support Plan Quality Evaluation Guide (BSP-QE) | Browning-Wright (2007); Kraemer et al (2008) |

Service User Studies

Participant numbers for the 8 studies that included service user outcomes, ranged from 5-138 (5, 25, 32, 35, 37, 60, 61, 138). Outcome measures used in each study to evaluate different variables are outlined in the table below.

Table 5: Service User Outcome Measures

|  |  |  |
| --- | --- | --- |
| **Variable Measured** | **Outcome Measures** | **Studies Reporting** |
| Frequency of behaviour | Service incident reports | Baker (1998) |
| Behaviour recordings | McClean et al (2005); Dench (2005); McClean & Grey (2012); Crates & Spicer (2012) |
| Frequency, severity & management difficulty of behaviour | Checklist for Challenging Behaviour | Grey & McClean, (2007); Gore & Umizawa (2011); McClean & Grey (2012) |
| Quality of Life | Quality of Life Questionnaire (Schalock & Keith, 1993) | Dench (2005) |

**Discussion**

This review presents data from 14 studies of PBS training. There are considerable differences between studies. The length of training is a fundamental difference, with a range from a 1-day training course, to a 2-year University Diploma course, including 57 days training. Comparisons between outcomes from different trainings must therefore be viewed in this light. The studies also vary considerably in their measures – some measuring staff outcomes only, some service user and some both. Even those studies all measuring staff outcomes have a range of measures – some focus on cognitive and emotional responses; others on knowledge acquisition; and some on skills acquisition. Despite these differences, however, there are a number of observations that may be made.

A number of studies only consider changes in staff knowledge, attributions or emotional responses (Lowe et al, 2007; McGill et al, 2007; Gore & Umizawa, 2011). While significant changes in these variables were found following training, changes in staff behaviour were not measured so that it is difficult to extrapolate these results to changes in staff practice. It might be logical to assume that changes in (for example) staff beliefs about challenging behaviour will lead to changes in support to individuals but there is little evidence to support this assumption. Stokes & Baer (1977) refer to this as a 'train & hope' model, i.e. delivering training and hoping that staff will implement positive changes back in the service

Of the 10 studies focusing on staff outcomes, 7 report on staff skills. Of these, 4 studies report on skills applied in practice, i.e. where PBS strategies are implemented and results for service users are reported. The remaining 3 studies focus on related skills, for example, writing BSPs (Freeman, 2005; Browning-Wright, 2007 & Kraemer, 2008). The 4 studies that do focus on skills applied in practice mainly do this via person-focused training, i.e. where trainees are supported to write and *implement* an FA and BSP for an individual (Baker, 1998; Dench, 2005 & Crates & Spicer, 2012); in addition, Reid et al (2003) used on-the-job checks and assessed role-play in order to teach a range of PBS skills. This opportunity to apply learning in practice appears to clearly meet the guidance laid out by Dunlap et al (2000) in their article on PBS training. Intuitively, it appears likely that skills practiced are more likely to be retained than those that are not. It is likely that research focusing on staff behaviour, rather than knowledge, feelings of efficacy, or causal attributions may have more of an impact on actual practice. The literature in relation to Active Support is helpful here (e.g. Jones et al, 1999 & 2001) as it stresses on-the-job coaching as a necessary element of effective staff training and demonstrates outcomes in achieving change of practice in staff’s own workplace.

In terms of length of training, there are mixed results. Some short sessions were shown to have a clear impact on staff skills in developing BSP. For example, Browning-Wright (2007) which was only a 1-day session, reports that post-training staff are four times more likely to write BSP which are rated good or superior. On the whole, though, the studies reviewed here appear to show that longitudinal training which allows trainees time and opportunity to practice skills within the workplace, and to complete assignments between formal teaching sessions, is likely to be more effective in achieving real changes in practice and in teaching staff lasting skills (Baker, 1998; Freeman, 2003; Dench, 2005; Crates & Spicer, 2012). However, attributing changes following training to the actual training rather than to other organisational changes is difficult; changes in management systems and organisational procedures could have had an impact (e.g. Lowe et al, 2007). Research reporting this in more detail would require a controlled comparison group.

Systems or organisational change is an important element of providing successful and long-term training. This link has been highlighted in previous studies, for example in the use of the Periodic Service Review (La Vigna et al, 1994). The Periodic Service Review (PSR) can be incorporated into the management systems of an organisation as a follow-up to training in PBS. It is a quality assurance process that allows visual feedback to staff regarding their performance in implementing agreed standards in relation to PBS. Further research around the role of the PSR in supporting lasting change following PBS training would be helpful.

Of the 8 studies including measures of outcomes for service users, 4 are based on work done in Ireland by The Brothers of Charity and the Callan Institute. McClean et al (2005), Dench (2005), Grey et al (2007) and McClean & Grey (2012) all showed significant reductions in challenging behaviour following longitudinal person-focused training, demonstrated both by real-time behaviour recordings and by use of the CCB. In addition, both Baker (1998) and Crates & Spicer (2012) showed considerable reductions in challenging behaviour via their longitudinal trainings. Baker demonstrated a reduction from baseline for 5 individuals following a 3-session person-focused longitudinal training course. Although this training was shorter than the Irish studies, each session was a month apart, and follow-up data was taken 2 months after the final training session, so it seems fair to describe this as longitudinal training also. Crates & Spicer utilised a training-for-trainers format in their Tasmanian study, based on the La Vigna et al (2005) model, and providing a training model similar to the Irish studies. It is difficult to come to conclusions based on the limited number of studies, but it appears likely that where staff skills are improved via longitudinal, person-focused training, positive changes in levels of service user challenging behaviour may also be expected.

Gore & Umizawa (2011) and Reynolds et al (2011) both report on joint training between staff and family carers. Both studies report significant improvement in challenging behaviours on the CCB and the ABC. PBS training which includes family members and stakeholders from an individual’s various support environments are clearly meeting the standards outlined for PBS training presented by a number of PBS practitioners, e.g. Anderson et al (1993) and Dunlap et al (2000).

It appears to have been difficult to show systematic links between PBS training and improvement of support/increased quality of life for service users. Only one study of the 14 reported directly on quality of life outcomes for service users. Dench (2005) attempted to evaluate outcomes for services users following a longitudinal PBS training course. However, despite positive anecdotal evidence of lifestyle changes, these were not able to be to be measured and reported; she notes this may have been due to the Quality of Life Questionnaire (Schalock & Keith, 1993) being insufficiently sensitive to measure these changes.

In terms of looking to the future, there is a need to be creative and innovative in how training is delivered, both to maximise resources and to achieve the coverage needed. Use of information technology and video training are both measures which have demonstrated some element of success (Macurik et al, 2008 & Sailor et al, 2000), and may be useful in this context. Further exploration of their use in relation to PBS training would be appropriate.

In addition to creative use of technology, coverage could also be increased by utilising a training-for-trainers model as reported by Crates & Spicer (2012). This study demonstrated that ‘second generation’ training could be as effective as that delivered directly by La Vigna; this is an encouraging model in terms of achieving high quality training with reasonable coverage. Rotholz & Ford (2003) also utilised this approach in that trainees who successfully completed the PBS training for supervisors were eligible to enrol in a 2-day trainers’ course and were assessed in their training skills. (This study is not included in the review as the data were already reported in Reid et al, 2003). These elements of training may be useful as a means of furthering an organisation’s ability to provide PBS training to their staff.

There are a number of implications for research and practice in PBS training arising from this review. There is a need for considerably more research on the impact of PBS training for service users in terms of frequency of behaviour and also episodic severity (La Vigna & Willis, 2005), but more especially in terms of quality of life outcomes for service users. In particular it would be useful to explore what supports good generalisation and maintenance of benefits from PBS training, so studies including long-term follow-up would be particularly helpful.

In addition to service user outcomes, research is also needed to examine what makes training effective for staff and service users. This may include considering issues around impact of organisational environments that promote PBS training and practices: for example, what is the impact of trainees’ supervisors also being trained; what impact does good contextual fit have on implementation of PBS plans; and how can organisational systems, such as the PSR (La Vigna et al, 1994) be used to support implementation.

In all of these areas, it would be ideal to see use of more powerful single case or group experimental designs in order to separate out the influences of different variables and allow clearer conclusions; it would also increase the confidence we can have in study results if there was more use of established measures for ensuring the reliability of the data presented.

**Conclusions**

Research into the impact of staff training in PBS has so far focused more on outcomes for staff than service users. The 8 studies which consider outcomes for service users have demonstrated reductions in challenging behaviour, but have not demonstrated a link with improved quality of life for those individuals. It would be useful for future research to focus on evaluating impacts on the lives of service users resulting from staff training in PBS.

It seems likely that staff training which supports the practice and application of skills within the workplace of candidates attending the training will be more effective in producing positive changes in the lives of service users.