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Developing behavioural services to meet defined standards within a national system of specialist education services

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Abstract

In response to increasing demand for more accountability and improved outcomes in the provision of behavioural services, Specialist Education Services (SES) in New Zealand employed the trainer of trainers programme developed by the Institute for Applied Behaviour Analysis (IABA). The goal was to develop a national training team capable of training SES staff to carry out assessments and develop support plans that could meet defined standards. The purpose of this study was to evaluate the outcomes of this trainer of trainers project. The primary methods of evaluation included the pre-post training comparisons of trainees' functional assessments and positive behaviour support plans, against 140 defined criteria. The results of this project indicated that the SES national training team was able to train SES staff to meet the same standards of service delivery as the external IABA trainers. Further, a Periodic Service Review (PSR) system was implemented to insure that service standards could be maintained at a high level. A major conclusion reached in this study was that a trainer of trainer approach appears to be effective in preparing large numbers of educational personnel to meet the increasing demands by schools for professionals to meet a high standard of service delivery.

Keywords: *Trainer of trainers, behavioural services, defined standards, education.*

Introduction

State and federal legislation, such as the Individuals with Disabilities Education Act (IDEA) (1997) in the USA, has mandated functional assessment for students in school settings whose behaviour is putting them, their education or the education of other students at risk. This same legislation establishes strong mandates in support of positive behavioural strategies over the more traditional punitive methods. Notwithstanding the need for more treatment utility studies, as others have pointed out [1], a strong, growing and substantial body of professional literature has argued for the same [2–17]. The same need for functional assessments and positive behavioural supports for students has been reflected in the international literature. Among others, this includes the literature in the UK [18–20], Australia [21,22], Israel [23], Norway [24] and New Zealand [25].

However, while school districts across the US are now responsible for providing these services to their students, school psychologists and other pupil appraisal personnel have typically not been prepared

by their professional training and certification programmes to carry out these activities [26–29]. In their survey of 216 doctoral and specialist level school psychology training programmes, Shriver and Watson [28] concluded that 'On the face of it, the amount of didactic and practicum training in behaviour analysis does not appear to represent the time commitment needed to adequately prepare school psychologists in the effective application of behavioural technology in the school' p 219.

This has held districts and individual professionals in the uncomfortable position of providing services they may not be competent to provide and frantically seeking out the training that would better prepare them. This lack of training is in spite of a national training initiative in this area [30–32]. For example, over the last 20 years, 20% of the enrollment in the training that IABA provides in the Assessment and Analysis of Challenging Behaviour has included school or educational psychologists [33]. This includes educational and school psychologists from other countries such as Australia, Canada, Greece, Ireland, Malta, New Zealand, Norway, Spain, the Isle of Man and the UK. While not necessarily

legislatively mandated in other countries, this continuing world-wide enrollment reflects the international need for training.

This responsibility was recognized by the leadership of Specialist Education Services (SES) in New Zealand, where training initiatives had not yet begun. Further, they believed that providing behavioural services that met defined standards would be strategically advantageous in an atmosphere in which publicly-funded agencies were being held increasingly accountable for demonstrable outcomes.

To prepare its pupil appraisal personnel to provide behavioural services that met defined standards, including those for comprehensive functional assessment services and the development of positive behavioural support plans for students, a trainer of trainers approach was selected. This approach was selected as being the most cost effective way of providing the desired training to its professional staff [34–36]. For this purpose, SES contracted with the Institute for Applied Behaviour Analysis (IABA). Based on SES's own consensus building process, IABA was selected because of its well established history of providing this kind of training [33] and its development of [34] and experience in providing effective trainer of trainers programmes. Specifically, successful trainer of trainers projects covering the same content areas had previously been carried out by IABA in British Columbia, in Canada, and in Arizona, in the US, and in Dublin, Ireland.

Specifically, a trainer of trainers and consultation multi-year programme was developed between IABA and SES that called for IABA:

(1) To provide practicum-based training for up to 40 SES psychologists and other professionals in the provision of behavioural services that met defined standards using the IABA Multi-element Model [37]. There are four elements to IABA's Multi-element Model, three having to do with process (i.e. independent variables) and one having to do with outcomes (i.e. dependent variables), as follows:

(a) *Comprehensive Functional Assessment*: This involves collecting data and information based on direct observation, interaction with the focus person, thorough records review and detailed interviews. The topics covered included:

- (i) Referral Information;
- (ii) Description of the Person—including the person's physical characteristics and their cognitive, language and communication, motor/perceptual, self-care, social, community, domestic and recreational/leisure skills and abilities;

(iii) Other Background Information—including the family history and background, an ecological description of the current living arrangement, a description of the current programme (school) placement, health, medical and psychiatric issues, a description of previous and current treatment attempts, a mediator analysis and a motivational analysis; and

(iv) A functional analysis of the problem behaviour—including an operationalized description of the problem, the history of the problem, an antecedent analysis (including an identification of those setting events and triggers associated with both the higher and lower likelihoods of target behaviour occurrence and a description of the directly observed events that support those conclusions), a consequence analysis (addressing both planned and unplanned consequences and their effects on both behaviour over time and on the severity of the behavioural episode), an ecological analysis that identifies the mismatches between the person's needs and characteristics and their environments and concluding hypotheses about the meaning, i.e. the function of the behaviour. This last component of the assessment goes beyond describing the function of the behaviour in terms of an operant category but also extends to attributing a communicative meaning for the behaviour from the person's point of view [38].

(b) *A Multi-element, Positive Behavioural Support plan*: Including three categories of proactive strategies, i.e. ecological strategies, to smooth the fit regarding the ecological mismatches that have been found in the ecological analysis; positive programming to teach functional equivalent, functionally related, coping and tolerance skills and other behaviours/skills to replace the target behaviour; and non-aversive direct treatment or focused support strategies to reduce and if possible eliminate the need for reactive strategies and, in contrast with the proactive strategies, non-aversive reactive strategies to get rapid and safe control over target behaviour when it occurs. In IABA's multi-element model, reactive strategies are not used as consequences to reduce future problem behaviour (that is addressed through the proactive strategies). Rather, reactive

strategies have the narrow but important role of reducing the severity of an episode of target behaviour [39,40].

- (c) *Mediation*: This involves the assurance of consistent implementation of the entire behaviour support plan through the application of the principles and procedures of organization behaviour management and total quality management, as incorporated into the Periodic Service Review (PSR) [41,42]. (With respect to behavioural services within SES, the use of the PSR was introduced at both the individual student level and at the agency level. At each level, process and outcome standards were operationalized, frequent (weekly to monthly) monitoring occurred, visual feedback graphs were prepared and provided, showing each team's performance, and competency based training was provided, if necessary, to improve performance to the desired levels.)
 - (d) *Outcome Measurement*: This involves data collection to evaluate whether or not there have been improvements in the person's quality of life; whether or not the objectives for reducing both the rate and the episodic severity of the behaviour have occurred; whether or not these changes are durable and generalize whether or not there have been any negative side-effects and, finally, whether or not the plan's goals and methods have social validity [43], i.e. whether or not they were acceptable to the client, family and involved staff.
- (2) To provide training for an SES professional training team, to be developed to train other SES professionals in the provision of behavioural services that met defined standards using the Multi-element Model.
 - (3) To provide consultation to SES in the development of Periodic Service Review (PSR) [41,42] in developing defined standards for the provision of behavioural and other SES services.
 - (4) To evaluate the outcomes resulting from the training and consultation provided by IABA to SES.

The purpose of this article is to present the outcomes resulting from the training to SES by IABA.

Method

Participants

First generation trainees (i.e. those trained by one of IABA's founders and its Clinical Director for the

past 23 years) included 38 individuals working for SES as psychologists or in a comparable professional capacity in the Behavioural Services unit. SES was a national organization separate from but funded by the Ministry of Education, to provide consultation, through a system of regional offices, to publicly funded schools throughout the country, in the areas of Behavioural, Inclusive, Early Intervention and Communication services. A small number of participants were dividing their work assignments between Behavioural Services and one of the other SES units (e.g. Inclusive Services, Early Intervention or Communication). Although it was understood that all SES professionals providing behavioural services would eventually be trained, first generation trainees volunteered, with the further understanding that the SES national training team would be selected from their ranks. Second generation trainees, i.e. those trained by the SES national training team, included 23 individuals working for SES in comparable positions. The students who served as focal people for the trainees in the practicum component of the training covered elementary, middle and high school ages and were generally enrolled in regular education vs. special education classes. They had, however, been referred by their schools to SES for behavioural services. Generally, they did not carry a diagnosis of a developmental disability nor a mental health problem, but some were identified as having an attention deficit disorder, a specific learning disability or similar challenges.

Setting

First generation trainees attended lectures and workshops offered by IABA in Hamilton, New Zealand. The SES national training team provided lectures and workshops for the second generation trainees in Auckland, New Zealand. The practicum parts of the training (e.g. carrying out a functional assessment and writing a functional assessment report and support plan) were conducted in various schools and professional settings throughout New Zealand within which SES consulted and/or operated.

Procedures

Participant training. The training objectives were:

- (1) To train participants to provide sophisticated and professional levels of assessment services including the design of comprehensive, state-of-the-art, multi-element support plans designed to produce valued outcomes in cost effective ways;

- (2) To train participants in effective (PSR) strategies to assure staff consistency and total quality in service provision;
- (3) To provide a written set of materials, forms and procedures for the smooth administration and provision of behavioural services;
- (4) To have each participant design and implement a comprehensive multi-element support plan that was based on a thorough comprehensive functional assessment of behaviour for a focus person of their choice; and
- (5) To prepare a SES national training team to provide training to other SES professional to achieve these same objectives.

Training methods included lectures, Socratic discourse, reading assignments, practicum assignments, repeated practice, group activities, individual written feedback, individual verbal feedback, group feedback and modelling. This training took place at two levels. Level One training consisted of 4 days of lectures, for 6 hours a day, including (but not limited to) topics such as IABA's multi-element model, functional behavioural assessment, positive programming to teach functionally equivalent and other replacement behaviours, focused support strategies, including (but not limited to) the use of antecedent control and the use of preferred activities and events to reduce the need for reactive strategies, reactive strategies and emergency management within a non-aversive framework and systems for assuring staff/programme consistency. After completing Level One training, trainees entered Level Two training, a Longitudinal Practicum, which included four Modules and three inter-module practicum assignments related to carrying out a comprehensive functional assessment, developing a positive, multi-element behavioural support plan and implementing that plan for an actual student referral. Level Two training involved 9 days spread over a period of ~8 months. Level One and Two trainings were provided by IABA for first generation trainees. Second generation trainees received Level One and Two training from the SES national training team with the coaching, support and supervision of IABA. A detailed outline of the training curriculum is available from the first author.

All first and second generation trainees were asked to submit a comprehensive functional assessment and recommended support plan that they had completed prior to the training they received as part of this project. Upon completion of Level One and Level Two training, they also submitted the comprehensive functional assessment and recommended support plan they had completed and implemented, based on the Level Two practicum assignments.

After completion of the first generation training, the SES national training team members were selected. Specifically, a list of training team candidates was developed by IABA based on the clinical performance of the first generation trainees (i.e. the quality of functional assessment and support plan as measured by the defined standards of the AIEI, below). Key staff from SES reviewed the list and, based on additional personal and professional characteristics of the listed individuals and the geographical needs of SES, some individuals were removed from the list and some were added. IABA and SES mutually agreed upon the final list, which comprised the training team.

Trainer training. The national training team was prepped, supervised and monitored by IABA during the initial training replication (i.e. second generation training). Lectures, role play situations, readings, assignments and supervised experience were used to train the team. Specifically, training for trainers included:

- (1) access to materials used by IABA during the first round of training (e.g. overheads, lecture notes, pre- and post-tests);
- (2) meetings with IABA to discuss the materials;
- (3) preparation of materials, including a review of the logic of each section and the major points of each section;
- (4) a determination of which trainers were most comfortable with which material and determination of who on the team would present what materials, with back-ups and alternates identified;
- (5) practice sessions when requested;
- (6) a meeting to discuss final questions, concerns, doubts, etc., prior to the first training session; and
- (7) after training sessions, team members critiqued each other's performance and IABA critiqued the team's performance.

In addition, the audience completed an evaluation form critiquing the presenters. Team members critiqued each other so they would become an independent team that could critique its own performance rather than relying on the feedback of an external agent (i.e. IABA).

Evaluation of reports. A total of 103 pre- and post-training functional assessment reports and support plans were evaluated; 63 reports from the first generation and 40 from the second generation. Prior to evaluation, each report was randomly assigned a code number and prepared for distribution. Report preparation entailed the removal of any

information identifying the report as a pre-training or post-training report and removal of any written comments or feedback that appeared throughout the report (i.e. any written comments by IABA or the training team regarding a report's contents were erased).

Materials. The Assessment and Intervention Plan Evaluation Instrument (AIEI) was used to objectively evaluate pre- and post-training functional assessment reports and support plans for clinical soundness. Table I provides an outline of the contents of the evaluation instrument and sample scoring criteria. As indicated, it incorporated requirements for 12 different areas of content for the comprehensive evaluation of a functional assessment report and support plan against 140 defined standards. The AIEI was developed with the goal of providing formalized measures of the completeness and thoroughness, i.e. clinical soundness of functional assessments and support plans. Versions of the evaluation instrument have been published elsewhere [41,44] and there is considerable support for its content [3,5,11,45-53]. The inter-rater reliability and criterion validity of the instrument also has been tested (Ballmaier, 1992, unpublished doctoral dissertation) and both reliability and validity were demonstrated at the < 0.01 level of error probability. Nevertheless, the 1992 study showed that some of the specific items did not have inter-rater reliability. These were reworked for the current study and inter-rater reliability was re-evaluated again, as described below.

Upon reviewing the functional assessment and support plan reports, a '+' was recorded if an item met the scoring criteria as defined on the evaluation instrument, an '0' was scored if it did not, and a 'N/A' was scored if the item was not applicable. A percentage score for each report was calculated by adding the total number of '+'s and dividing by the total number of criteria scored. The AIEI and the scoring protocol are available from the first author.

Raters. Seven individuals were recruited as raters for this evaluation project. All raters had received previous training from IABA on how to write comprehensive functional assessments and support plans and had repeatedly demonstrated competence in doing so. Each of the raters had at least 3 years experience in the field of developmental disabilities. Five of the raters were employees of IABA throughout the course of this project. Two raters were past employees of IABA. Five of the raters had master's degrees in psychology, social work or a related field. The other two raters had bachelor's degrees. All raters were asked to sign a statement of

confidentiality prior to their participation in this project.

Rater training. Raters participated in a 1 day training session during which the evaluation instrument and the scoring criteria were introduced. Training included a verbal description of the evaluation instrument and the scoring protocol, as well as a practice session within which sample reports were independently scored by the raters and the trainer until 80% inter-rater agreement or better was achieved for three consecutive reports. The scoring protocol was available to raters throughout the project to minimize the effects of extraneous variables such as fatigue and rater drift. During training, the mean inter-observer reliability index was 87% with a range of 77-94%.

Reliability. Approximately 25% ($n=26$) of pre- and post-training reports were randomly selected and independently rated by two raters to determine inter-rater reliability. Inter-rater reliability indices were calculated by using the following formula:

$$\frac{\# \text{ agreements}}{\# \text{ agreements} + \# \text{ disagreements}} \times 100 = \% \text{ Reliability}$$

Social validity surveys. Upon completion of their training, first and second generation trainees were asked to complete a 13-item survey describing their views about the training they had received. Survey questions are presented in Table II. Questions were rated using a Likert scale of 1-5, with '1' signifying 'less than expected', 'not significant', 'not at all' or 'less than justified' and '5' signifying 'more than expected', 'very significant', 'greatly' or 'more than justified', depending on the question asked. The completion of these surveys was strictly confidential, allowing the respondents to be candid in their responses while remaining anonymous.

Results

Of the 38 individuals who participated in first generation training, 26 submitted pre-training reports and 36 submitted post-training reports. Pre-training reports were not of the same students addressed by the post-training reports, but were accepted as representative of the defined standards that were being met by that professional prior to training. Of the 26 pre-training reports received, five were not comparable to the post-training functional assessment and support plan and so could not be fairly evaluated for comparison (e.g. educational or

Table I. Outline of the Assessment and Intervention Plan Evaluation Instrument (AIEI) and sample scoring criteria.

- I. *Identifying Information*—person's name date of birth, present address, referring agency.
- II. *Reason(s) for Referral*—source of referral, referral behaviours, key social agent's reasons for referral and possible discrepancies.
- III. *Data Sources*—methods used to collect assessment information (e.g. interviews, direct observation, records review, rating scales, inventories).
- IV. *Background Information*
 - A. *Client Description*—age, gender, diagnosis, appearance, ambulation, motor skills, physical disabilities, cognitive abilities, expressive and receptive language, self-care skills, domestic skills, academic skills, leisure skills, community skills;
 - B. *Past and Present Living arrangements*—location, relationships, type of residence, description of residence, family members;
 - C. *Past and Present Educational and Day service settings*—location, type of service, description of service, relationships;
 - D. *Past and Present Health and Medical Status*—general health, seizure activity, medication; and
 - E. *Past or Present Treatment received for referral behaviour(s)*—description of any treatment received for currently referred behaviour problem now or in the past and the effects of those treatments.
- V. *Functional Analysis/Functional Assessment*
 - A. *Operational Definition of Target Behaviour*—topography, cycle, episodic severity, course, strength;
 - B. *History of the Problem*—onset of target behaviour, duration, changes throughout history of problem;
 - C. *Antecedent Analysis*—settings, locations, people, times, activities, immediate events that make the target behaviour more or less likely;
 - D. *Consequence Analysis*—reactions of others to behaviour, methods used to manage the behaviour when it occurs, maintaining events;
 - E. *Ecological Analysis*—ecological factors impacting on behaviour (inter-personal, programmatic, physical environment); and
 - F. *Impressions and Analysis of Meaning*—list of hypothesis regarding the possible function(s) of the behaviour.
- VI. *Motivational Analysis*—method of analysis, list of potential reinforcers.
- VII. *Mediator Analysis*—description of key social agents and an estimate of their abilities and willingness to provide support.
- VIII. *Long-range Goals*—in terms of quality of life measures.
- IX. *Short-range Behavioural Objectives*—time-limited measurable objectives including criterion level and dates to determine achievement.
- X. *Data Collection*—description of methods of observation and data collection and reliability checks.
- XI. *Support Strategies*
 - A. *Ecological Strategies*—specific recommendations regarding the person's physical, inter-personal or programmatic environment;
 - B. *Positive Programming*
 1. *General Skills*—statement regarding systematic training in areas of self-care, vocational, domestic, leisure, recreational, community. Should be functional, chronologically age-appropriate and performed under natural conditions,
 2. *Functionally-equivalent Skills*—description of specific behaviours to be taught that provide the person a more appropriate/effective way of achieving the function served by the target behaviour,
 3. *Functionally-related Skills*—description of specific skills to be taught that are related to, but not functionally equivalent to the target behaviour, and
 4. *Coping/Tolerance Skills*—description of specific skills to be taught that help the person tolerate or cope with the natural environment;
 - C. *Direct Treatment Strategies*—description of strategies that are designed to produce rapid changes in the target behaviour (e.g. differential schedules of reinforcement, instructional control, antecedent control, stimulus control);
 - D. *Reactive Strategies*—description of specific strategies for managing the target behaviour when it occurs to maintain safe and rapid control of the situation; and
 - E. *Staff Training and Development*—description of specific strategies used to teach key social agents how to carry out the recommended support plans.
- XII. *Comments and Recommendations*
 - A. *Anticipated Difficulties*—statement regarding level of anticipated cooperation and motivation of key social agents;
 - B. *Additional Resources and/or services requested*—statement regarding any other services the client may require (e.g. medical examination, psychiatric evaluation); and
 - C. *Strategies for Evaluating Treatment Outcomes*—a time-frame for evaluating treatment outcomes and the need for continuous monitoring and revision of the recommended support plans.

Sample scoring criteria excerpted from the AIEI

V. Functional Analysis/Functional Assessment

- A. Operational definition of target behaviour 1 _____
 1. Description of the problem behaviour
 - Topography (1)
 - Onset/offset (2)
 - Episodic severity measure(s) (3)
 - Course/precursors (4)
 - Strength (5, 6)
 - Rate (5)
 - Episodic severity (6)

Scoring criteria

- (1) *Topography*. The physical characteristics (e.g. what it looks like and sounds like) of the actual target behaviour should be described (not its precursors or other associated behaviours which would be more fully described in the Course section below).
- (2) *Cycle (Onset/Offset)*. The onset and offset or other criteria should be stated for counting the occurrence of the target behaviour (e.g. First occurrence of the topography may be an onset criteria and having the topography absent for 5 minutes may be the offset). An event may also be scored in terms of its percentage of occurrence given an opportunity or observation interval.

(continued)

Table I. Continued.

- (3). *Episodic severity Measure(s)*. This should describe how episodic severity is measured, such as the average (and range of) duration of an episode, the average cost of repair or replacement resulting from an episode, the average severity rating based on scaled categories of topographies and/or the average severity rating based on scaled categories of outcomes. If episodic severity isn't going to be measured, a justification and explanation should be provided.
- (4). *Course/Precursors*. There should be a brief statement regarding the presence or absence of pre-cursors. If there are precursors evident, then these should be described in order of their occurrence. Then, there should be a description of how a typical episode of target behaviour unfolds, along with a description of post-cursor behaviours and the incidental behaviours that are concomitant with pre-cursor, target and post-cursor behaviour. The course of a typical episode may be contrasted with the course of a severe and/or a mild episode.
- (5, 6) *Strength*. The current measured or estimated rate (5) or other quantified measure of behavioural occurrence should be described. Rate is defined as average frequency per a unit of time or percentage of opportunity or observation intervals. The current rate should be stated in terms that are consistent with the Cycle definition. Episodic severity. The current measured or estimated level of episodic severity (6) of the behaviour should be described. This can be stated in terms of some measure of central tendency (mean, median or mode) and range. For example, this may be in terms of duration, cost of repair or replacement, scaled severity of topography of outcome, averaged for the incidents of target behaviour that occur.

Table II. Social validity survey questions for trainees.

Survey question
1. Please rate the overall quality of the longitudinal training course.
2. The training you received met your expectation.
3. The training you received will affect your professional practice.
4. The contribution of the introductory lectures to the overall quality of training was ...
5. The contribution of the practicum to the overall quality of training was ...
6. The contribution of the written feedback to the overall quality of training was ...
7. The contribution of the verbal feedback to the overall quality of training was ...
8. The contribution of hearing other cases to the overall quality of training was ...
9. The usefulness of the feedback provided by the instructor was ...
10. The public feedback provided by the instructor was positive.
11. The time and money invested in this training by myself and my agency is ...
12. As a result of the work in this course, I believe my focus student/client will benefit.
13. As a result of the work in this course, I believe my future students/clients will benefit.

psychological assessments vs. functional assessments). This provided for 21 pre-/post- comparisons, representing ~55% of those who began training. A total of 12 beginning trainees failed to submit pre-training reports because they did not complete the training (i.e. the two who didn't turn in a post-training report), they left SES prior to submitting them, they chose not to submit them or because they had never written a comparable report prior to the training (e.g. prior job description did not include the writing of functional assessment reports).

Figure 1 shows the results of the AIEI on the pre- and post-training functional assessment and support plans of the first generation trainees. The results indicate a significant increase in the AIEI scores for

first generation trainees after training. The mean AIEI score for pre-training reports ($n=21$) was 23.29% with a range of 7–50%. The mean AIEI score for post-training reports ($n=36$) was 78.50% with a range of 56–94%. Using a t -test for analysis, a statistically significant difference between the means was found at $p < 0.0001$ ($t = 18.84$; $df = 55$).

All 23 individuals who participated in the second generation training submitted post-training reports and 17 submitted pre-training reports. Of the 17 pre-training reports received, three were not comparable to the post-training functional assessment and support plans and so could not be fairly evaluated for comparison (e.g. educational or psychological assessments vs. functional assessments). This provided for 14 pre-/post- comparisons, representing ~60% of those who began training. The six second generation trainees who failed to submit pre-training reports did so because they left SES prior to submitting them, they chose not to submit them or because they had never written a comparable report prior to the training (e.g. job description did not include the writing of functional assessment reports).

Figure 2 shows the results of the AIEI on the pre- and post-training functional assessment and support plans of the second generation trainees. The results indicate a significant increase in the AIEI scores for second generation trainees after training. The mean AIEI score for pre-training reports ($n=14$) was 30.14% with a range of 11–61%. The mean AIEI score for post-training reports ($n=23$) was 79.91% with a range of 72–95%. Using a t -test for analysis, a statistically significant difference between the means was found at $p < 0.0001$ ($t = 13.16$; $df = 35$).

Although there was more variability among second generation pre-training report scores, no statistically significant differences were found between first and second generation pre- or post-training report scores. For pre-training reports, the mean was 23.29% for the first generation and 30.14% for the second generation. Using a t -test for analysis,

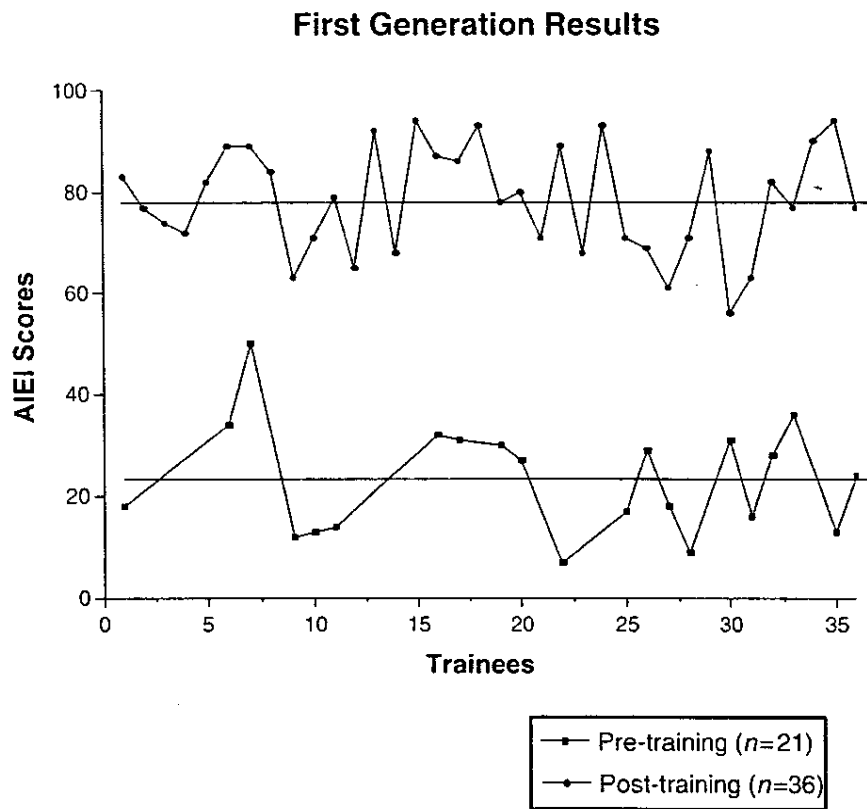


Figure 1. Evaluation of first generation pre- and post-training behavioural assessment and intervention plan reports.

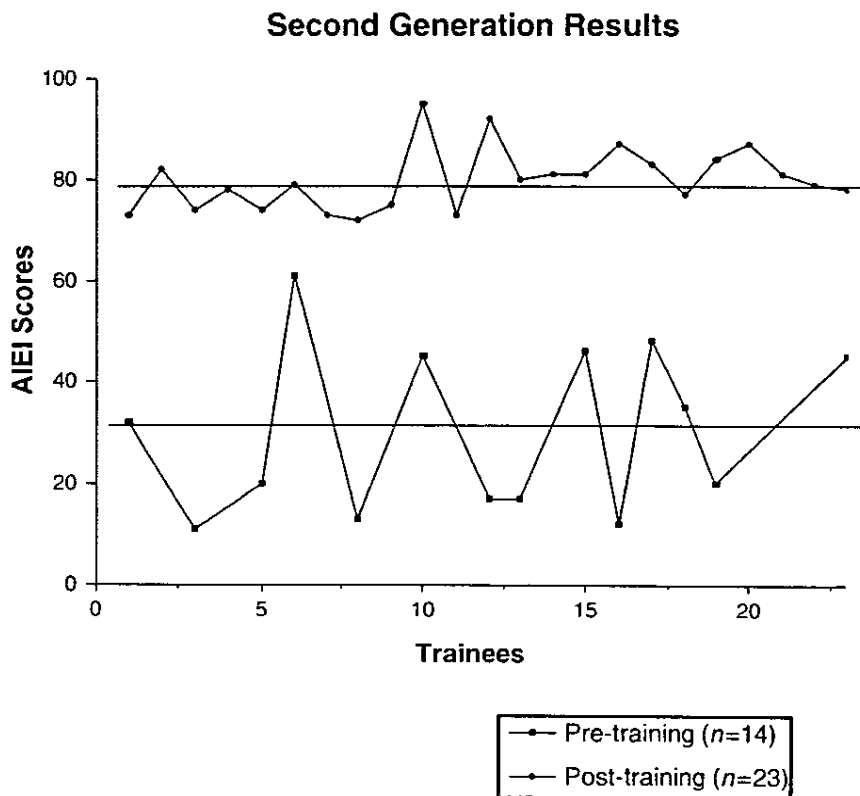


Figure 2. Evaluation of second generation pre- and post-training behavioural assessment and intervention plan reports.

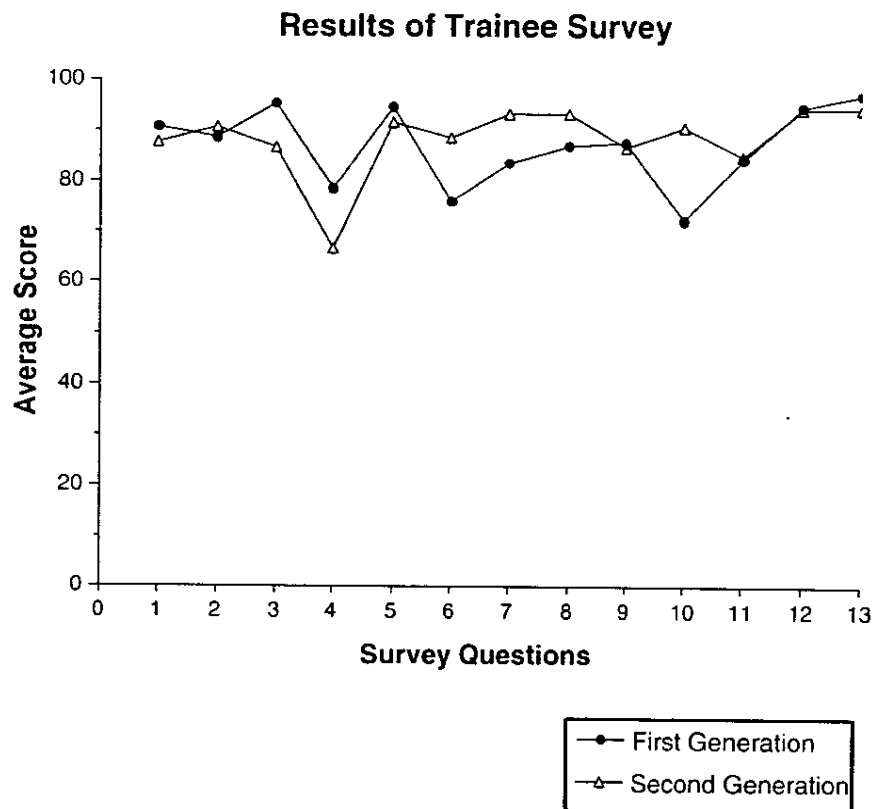


Figure 3. Results of social validity survey completed by first and second generation trainees.

a statistically significant difference between the means was not found ($t=1.49$, $p=0.1458$). For post-training reports, the mean was 78.50 for the first generation and 79.91 for the second generation. Again, these means were not found to be significantly different ($t=0.58$, $p=0.5642$). These results indicate that second generation training was as effective as first generation training.

Inter-rater reliability was conducted on ~25% of the pre- and post-training reports. Pre- and post-training reports were randomly selected for reliability, but were evenly distributed between first and second generation reports (i.e. 16 first generation reports, 10 second generation reports) and also were evenly distributed between pre- and post-training reports (i.e. eight each from the first generation, five each from the second generation). Raters did not know which reports had been selected for reliability checks. The mean reliability index was 85% with a range of 73–100% across reports and raters. This high level of inter-rater reliability suggests that the reworking of some of the items improved reliability over the original (1992) study.

These results indicate clearly that the content and quality of the functional assessments and support plans significantly improved as a result of the training provided to the participants, as measured by their meeting the defined standards of the AIEI.

Moreover, no significant differences were found between groups, which indicates that the SES training team was as effective in producing these results as was IABA in the first round of training.

While the AIEI results are the primary measure of the effectiveness of the trainer of trainers project to improve the provision of behavioural services in SES, as measured by their ability to meet defined standards, surveys were carried out to evaluate the social validity of this project. Figure 3 illustrates the results of the social validity surveys obtained from the trainees. Surveys were completed by 38 first generation trainees and by 21 second generation trainees. The mean survey score for first generation trainees was 87.1%, with a range of 69.2–98.5%. The mean survey score for second generation trainees was 88.3%, with a range of 72.3–98.5%. There were no statistical differences between the overall survey scores of the first and second generation trainees ($p=0.58$). However, when questions were analysed separately, significant differences between training groups were found for Questions 3 ($p=0.006$), 4 ($p=0.02$), 6 ($p=0.01$), 7 ($p=0.02$) and 10 ($p=0.0008$). Most notable were the differences in responses for Questions 6, 7 and 10, which focused on the feedback provided to trainees. Second generation trainees appeared to be more satisfied with the written and verbal feedback they received

and with the positive nature of the public feedback they received during the training. This is not surprising when considering the dynamics of a new training team, particularly one comprised of peer professionals within an organization. It is likely that the training team was very sensitive to how written and verbal feedback was provided to the trainees given that some might have been peers and co-workers in other situations. Additionally, differences that existed in the responses to Questions 3 and 4 may simply reflect differences in the prior training and experience of the trainees in the first generation versus those in the second generation training rounds.

Discussion

These results show that the primary objective of this trainer of trainers project was met. The SES national training team demonstrated an ability to train SES professionals to meet professional standards in the provision of behavioural services at the same level as those met by the trainees of IABA. Further, trainee satisfaction regarding the training they had received was very positive and generally the same for both the first and second generation.

Another aspect of this project was that SES would implement a management system to assure the consistent provision of a high quality of behaviour services, regardless of where those services were being provided. For this purpose, a Periodic Service Review system [10,11] was developed. This quality management system has, in general, been implemented and has proven its ability, when used appropriately, to assure that high standards can be consistently met. In addition to developing a PSR for its Behavioural Services unit, SES has developed PSR systems for its Early Intervention and Communication services as well.

Although it was not formally evaluated, one of the most gratifying aspects of this project for IABA has been the acceptance of the Multi-element Model for the provision of behavioural services by the Maori community within SES. Maori representatives went out of their way to understand the basic principles of this approach and to assess its appropriateness for Maori students and their families. It is believed that the general conclusion that the Multi-element Model could make a contribution with this population is evidence of its face validity and its multi-cultural relevance. A sub-committee within SES has developed protocols to guide the culturally competent provision of behavioural services when employed in support of a Maori student.

Finally, while this evaluation report systematically looked at the results of first and second generation training, the national training team continued to

provide training for additional staff. By all reports, the outcomes of these subsequent rounds of training met or exceeded the results reported here, further attesting to the effectiveness of the trainer of trainers model employed in this study. The trainer of trainer project appears to have had a lasting impact on the provision of behavioural services for students in New Zealand. When training was provided in 1998/1999, SES was a separate entity with its own governing board. Since then, SES has been dissolved as an independent organization and integrated into the Ministry of Education organizational structure as Group Special Education (GSE). Withstanding this major reorganization and restructuring, IABA's Multi-element Model continues to provide the framework for GSE's provision of behavioural services (www.ses.org.nz/behave.htm), attesting to its efficacy and its robust social validity.

A limitation of this study was that it did not directly measure changes in student target behaviour as a result of the implemented support plans. The primary purpose of this study was to see if the trained trainers could train SES professionals to provide behavioural services that met defined standards for carrying out Comprehensive Functional Assessments and Positive Behavioural Support Plans. Further, survey results showed that trainees were of the opinion that target behaviour was improved, indicating that the results they obtained as a result of their behaviour support plans had social validity. Nevertheless, it would have been helpful and appropriate for this study to directly measure whether or not target behaviour was reduced and whether or not the assessments had treatment utility [54] in that reduction.

While studies have been carried out which suggest the treatment utility of comprehensive functional assessment [55,56], others have suggested that the evidence is lacking [1,57]. However, before an appropriate research programme into the treatment utility of functional assessment could be launched, it would be necessary to have available tools whereby functional assessments could be reliably evaluated as being complete or as having critical information thought to add to its treatment utility. For example, all other things being equal, if one wanted to determine whether or not an antecedent analysis added to the treatment utility of a functional assessment, one would need an evaluation tool that could reliably identify functional assessments as those that included an adequate antecedent analysis and those that did not. The AIEI provides such a tool, as it defines 140 detailed standards that are thought to represent clinical soundness, i.e. to have treatment utility. Future research should be carried out to determine whether meeting these or other specifically defined standards contributes

to treatment utility and not just measure the treatment utility of functional assessment in general.

Another limitation of the study was that there was no attempt, given the national scope of this project, to evaluate whether geographical location, socio-economic status, ethnic and racial characteristics, etc., were related to the outcomes achieved. This was a missed opportunity, as was suggested by the informal observation of positive outcomes with the Maori population described above, that should be taken advantage of in future research.

A number of recommendations can be made to assure the fullest return on the major investment made in funding a multi-year trainer of trainers project. First, a PSR system should be maintained and utilized as the major mechanism whereby management can insure that national (state or district) standards for the provision of behavioural services are consistently met at the highest levels of professional practice. Those PSR standards should be reviewed on an annual basis with an eye toward improving them, 'moving the carrot out' and fully engaging in a process of continuous quality improvement. Secondly, in addition to the provision of intensive behavioural services, the service design and PSR process and outcome standards for less intensive behavioural services should be fully developed and implemented, to provide the benefits of the Multi-element approach to a greater number of students in a cost effective manner. Thirdly, the national (state or district) training teams created by projects such as this should continue and mechanisms for expanding and rejuvenating the team should be developed, such as can be accomplished by recruiting members for the training team from subsequent trainees. Further, training should be provided to professionals working in other units beyond behavioural services as staff working in early intervention, inclusive services, etc., also deal with students who may have challenging behaviour.

In conclusion, a trainer of trainer approach appears to be effective in preparing large numbers of educational personnel to meet the increasing demands on professionals working in school systems to provide behavioural services that meet defined standards.

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