
The Effectiveness of an ABA Training Workshop for Teachers and Health Care Professionals in China

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Abstract: There is a growing need for trained clinicians to provide applied behavior analysis (ABA)-based treatment for children with autism. However, demand for Board Certified Behavior Analysts (BCBA) greatly outstrips the current supply with the increasing prevalence of ASD in China. In the current study, we examined the effectiveness of a group ABA training workshop for teachers and health care professionals in China. 150 educators and health care professionals were recruited to participate in a five-day workshop in China. The workshop covered the following areas: ASD, Early Intensive Behavior Intervention, ABA, Discrete Trial Teaching, Natural Environment Teaching and Positive Behavior Support. The participants completed tests before and after the workshop, and the results of the tests were analyzed. During the pre-test, the average score was 41%. During the post-test, the average score rose to 61%. Most participants obtained high scores in the areas of ASD, general ABA knowledge, EIBI, and milieu teaching strategies. In the area of applying evidence-based strategies to manage problem behaviors, the scores were significantly lower. The group training was found to be an effective and acceptable method in increasing knowledge and understanding of ABA-based teaching strategies. It is suggested that large-group cross-cultural ABA training can be a cost effective way for training professionals across the globe.

Keywords: ABA, Effectiveness, Training, Workshop

1. Introduction

Applied behaviour analysis (ABA) is a science in which the principles of behaviour are applied systematically to improve socially significant behaviour, and in which experimentation is used to identify the variables responsible for change in behaviour [1]. A number of studies have demonstrated that ABA can produce improvements across a range of competencies including communication, social interaction, play, self-care, school and employment in individuals with autism [2-7]. Results across age groups have shown that ABA can increase an individual's participation in family and community activities [8, 9]. In fact, the Surgeon General of the United States has recognized ABA as the treatment of choice for autism [10]. However, despite the demonstrated effectiveness of applied behaviour analysis, there continues to be a shortage of trained clinicians to provide treatment.

Best-practice guidelines for ABA training for providers state that training programs should be designed and supervised by Board Certified Behaviour Analysts (BCBA) with experience providing ABA treatment [11]. However, demand for BCBA professionals greatly outstrips the current supply. This is evidenced by the case of China, where the need for ABA intervention has continued to grow with the increasing prevalence of autism spectrum disorder (ASD) [12]. Currently there are about 65 BCBA's (including BCBA-Ds) and 60 BCaBAs in China most of whom are located in Hong Kong, with only 17 BCBA's residing in Mainland China [11]. In June 2014, the China Association of Persons with Psychiatric Disability and their Relatives (CAPPDR) began to collaborate with SEEK Education Inc., a US-based non-profit organization providing services for people with autism and other developmental disabilities, to provide ABA training for 30 professionals to become Board Certified Associate Behaviour Analysts (BCaBA, also regarded as China Applied Behaviour Analysts-second level, CNABA-2).

In June 2016, Beijing Normal University, collaborating with Teachers' College Columbia University, became the first such institution in China to accept applications for their BCBA and BCaBA courses. And almost at the same time, the ABA professional committee of China Association of Rehabilitation of disabled persons (CARD) started BCBA and BCaBA courses, too. In addition, many private organizations in China have invited BCBAs from overseas to provide large group training for teachers and paraprofessionals. There remains a strong need for group-based training in ABA in China in order to teach a large number of practitioners in a cost-effective and timely manner so that they may provide much needed services.

Previous studies have suggested the effectiveness of group training in increasing staff knowledge of ABA. Many service agencies incorporate ABA as an instructional and intervention methodology [13]. Group training often consists of a combination of verbal instruction [14, 15], written instruction [15], functional behavior analysis [15], discrete trial instruction [16–18], performance feedback [19, 16, 20, 17], behaviour-specific checklists [17], video modeling [14], and role-playing [15]. In 2008, Luiselli et al. conducted a training program for 47 paraprofessional staff at a habilitation services agency for adults with developmental disabilities. Results indicated that ABA competencies increased from pre-training to post-training. Similarly, in 2010, Luiselli et al. were able to replicate these results with 35 participants across five participant groups.

Our aim in this study is to contribute to this growing area of research and to seek a cost-effective method of training that is consistent with BCBA standards. We proposed that an effective training program should be time-efficient, cost-effective, easily implemented, and socially valid. The present study used a training workshop with a larger number of educators and health care professionals to measure the effectiveness of the workshop through pre-training and post-training knowledge tests. Cultural considerations were taken into account and social validity was assessed.

2. Methods

2.1. Participants

A total of 150 participants attended the workshop. They comprised of 37 early childhood educators from preschool and kindergarten, 36 special education teachers, 9 intervention advisors, 31 health-care doctors working in kindergarten classrooms, 35 pediatricians, 1 education department officer, and 1 parent. Participants were recruited through the Women and Children's Health Centre, the Bureau of Education, and the Disabled Persons' Federation. Recruitment letters were sent out by Women and Children's Health Centre to potential participants at the above-mentioned organizations to target individuals that are involved with or interested in supporting children with autism. Ethics and participants' informed consent were in accordance with the requirements of University School of Medicine.

2.2. Settings

The training workshop took place in a lecture hall on the campus of a university in China. The presenters spoke to the trainees from a podium and a projector set up in the front of the hall. A desk and two chairs were set up next to the podium for demonstrations. The lecture hall provided an interactive environment that was conducive to small group discussions and role-play activities where trainers and trainees acted as therapists and patients respectively to demonstrate different strategies used in various situations. The presenters were able to walk around to observe the participants and answer questions.

2.3. Procedures

Preparation. PowerPoint presentations and handouts which were all from classic references [11, 1, 21] and were translated into Chinese. Materials and datasheets were prepared for demonstration and group practice.

Baseline. At the beginning of the first day, the participants completed a 10-question written test in Chinese, which included Early Intensive Behaviour Intervention (EIBI), ABA, Discrete Trial Teaching (DTT), Natural Environment Teaching (NET), and Positive Behaviour Support (PBS). All questions were in multiple-choice or true-or-false format.

Workshop. Three trainers presented at the workshop over a period of 5 days. The training consisted of lectures, video examples, live demonstrations, role-plays, and discussions. The lectures were presented in English, and translated in vivo into Mandarin by a translator. Chinese handouts were given to each participant. The discussions were led by the presenters – two of who have some understanding of Mandarin – and the translators. The workshop covered the following areas: ASD, EIBI, ABA, DTT, NET, and PBS. The participants completed the same 10-question written test as completed at baseline at the end of the fifth day. They also completed a 68-question written exam in Chinese after the 5-day workshop. The exam was in a multiple-choice format and the content was drawn from the teaching materials used in the workshop.

Research Design. The study used a causal design. The independent variable was the participation in the 5-day workshop. The dependent variable was the participants' understanding of the concepts taught which was demonstrated by their test scores. A number of cultural considerations were taken into account when this training was developed, including: 1) all materials were translated into simplified Chinese; 2) numerous videos were used throughout the training to show how to implement the target strategies in applied settings; 3) Mandarin Chinese was used as a medium during live demonstration; and 4) culturally relevant examples were used throughout the training. On a few occasions, some changes were made to the case examples during the training to better fit within the cultural norms in China. For instance, toilet training was used in numerous case examples as upon arrival in China, it was noticed that toilet training practice was significantly different from that used in North America. Thus toilet training was substituted with other self-help skills as examples. These considerations may have contributed to the high social

validity scores. Further studies are needed to investigate the importance of cultural sensitivity in ABA training.

3. Results

The results of the pre-test and post-test are shown in Figure 1 which illustrates the number of participants per percentage correct spanning from 0 to 100. During the pre-

test, the average score was 41%, with 40% of participants getting this score. During the post-test, the average score rose to 61%. The steep curve at the beginning of the pre-test indicated that more participants obtained lower scores during the pre-test. By contrast, the beginning curve of the post-test is more linear, which indicate that fewer participants obtained lower scores.

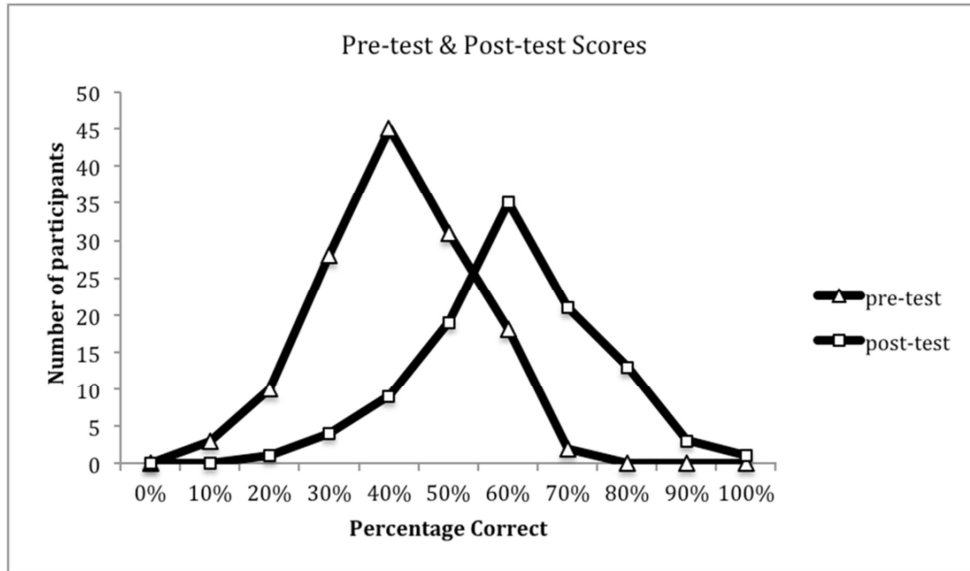


Figure 1. Pre- and Post-test Scores.

The final exam results are shown in Figure 2. The average score was 75% in the final exam. The maximum score was 88% and the minimum score was 50%, indicating that all participants passed the exam. 60% of the participants scored 71% ~ 80%. 15% of the participants scored 81% ~ 90%.

Most participants obtained high scores in the areas of Autism, general ABA knowledge, EIBI, and milieu teaching strategies. The score were significantly lower in the area of applying evidence-based strategies to manage problem behaviours.

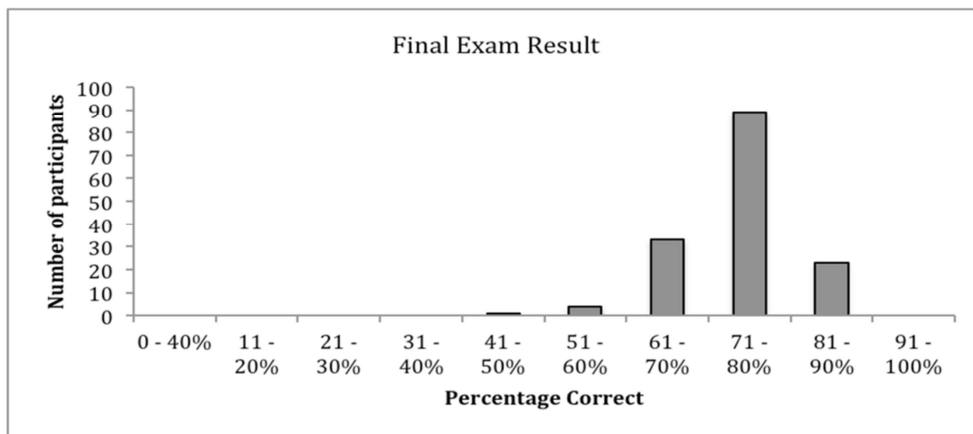


Figure 2. Final Exam Result.

Based on the pre-test/ post-test results, participants showed significant gains in using a functional perspective in viewing challenging behaviours. Two questions in the test were related to this area, in which the percentage correct increased from 19% to 71% and from 22% to 97% respectively. Participants showed no gains in three out of the ten test questions, although these were factual questions about ABA and BCAB. Numerous reasons may contribute to this result. One of the potential reasons was the choice of words used to write these questions. For example, one of the questions was

“ABA is best described as Discrete Trial Teaching (DTT)”. While DTT is one of the widely used ABA teaching strategies, it does not represent ABA. Another contributing factor may be the translation of materials used for training. Due to the time constraints, different translators were used during this process, and there may have been some discrepancies in the translation of the training materials and the tests.

Social validity was measured through a workshop evaluation. The results indicated that the methods used were

highly acceptable. The scores for all likert scale of 1 to 5, items ranged from 4.5 to 4.9. Most participants reported that the lectures on theories and strategies, and the case studies were the most useful elements. Generally, participants indicated their preference for more case studies. Many participants also showed interest in gaining more information on teaching self-help skills and more in-depth training on managing problem behaviours.

4. Discussion

Consistent with previous studies [16, 20, 22, 23, 24], the results of this study clearly indicate that large-group intensive ABA training is an effective method in increasing knowledge and understanding of ABA-based teaching strategies.

In the post-test, high scores were obtained in the areas of ABA, ASD, and EIBI. Average scores were obtained in the application questions related to DTT and NET. Relatively lower scores were obtained in the application questions related to managing challenging behaviours with PBS. These results indicate that a large-group intensive ABA training is effective for the participants to increase their understanding of basic ABA knowledge and structured, step-by-step teaching strategies [22]. However, this format may be insufficient to teach more complex applications of ABA strategies such as behaviour management. There were insufficient practice opportunities, though numerous case examples were used throughout the training. These examples improved understanding of the application of PBS, but were insufficient for the participants to utilize different strategies during application. Follow-up training in this area with a more hands-on approach would clearly be beneficial. Accordingly, pre-service staff training programs should consider performance-focused direction during initial didactic training [25], combined with “on the job” support using evidence-based methods [24]. It may also increase the effectiveness of the training if authentic cases from the participants were used as case examples.

Other factors may also contribute to the differences in scores across areas. PBS was taught in the last two days of the training. It is possible that the participants were less able to concentrate due to fatigue following the initial training days. Moreover, some participants had prior knowledge of DTT. DTT is also more consistent with typical teaching practices in China. In contrast, PBS introduces a different perspective against the cultural norm in viewing challenging behaviours and requires the participants to shift their perspectives. These factors may have served to make participants more receptive to DTT than PBS.

Despite the initial success of the large-group intensive ABA training, including other elements in future training may increase the effectiveness of the training. One of the main issues with the training was the lack of hands-on practice. Previous studies have indicated that on-site teacher education in schools and classrooms is more effective than teacher preparation that occurs mainly in a higher education setting without practical experiences [26, 27]. Center visits on some of the training days may have been beneficial, and would have served to increase the practical value of the training. It is also important to build in a follow-up system to

allow participants to raise questions following the training. However, this could be challenging due to the language barrier and the large number of participants involved. Setting up a forum or other platforms for the participants to discuss their questions amongst themselves is also a potential way to facilitate post-training follow-up.

Maintenance and generalization also need to be addressed. Although the participants demonstrated an increased knowledge base in ABA techniques, it would be important to investigate how the training has influenced their implementation of ABA strategies in practice. Providing implementation support post-training would be beneficial, as it would allow participants to receive supervision from the trainers when implementing ABA procedures initially. Some researchers [28] suggested that ongoing opportunities for practical application of new skills, under the guidance of experienced teachers, have been found to be essential for teachers of children with autism. Training individuals using the principles of ABA requires both a sound foundation of theoretical knowledge of ABA as well as proficiency in the application of ABA procedures. Follow up coaching and feedback would support the development of their capabilities as ABA therapists.

5. Conclusion

In conclusion, this study marks the first step of investigating the effectiveness of an ABA training workshop for teachers and health care professionals in China. The findings have implications for training ABA practitioners in different countries as the need for trained ABA professionals increases across the globe. Large-group cross-cultural ABA training can be a cost effective way for training professionals. It is important to validate the effectiveness of this training method. Further research is needed to investigate this matter and to explore ways to improve the effectiveness and cost-efficiency of cross-cultural ABA training.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committees and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the current study.

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