Using a Blended Curricular Model of Professional Development to Increase Educator Repertoires for Instructing Students with Autism Spectrum Disorders

Lisa Dille
Georgian Court University
United States of America

Abstract

This study investigated the effectiveness of a use of a blended curricular model of professional development to increase educator repertoires for instructing students with autism. Specific focus was on the use of a blended model of professional development in regard to increasing educator knowledge, educator self efficacy, educator self report of use of instructional methods, strategies, and learning supports with students with autism and educator application of instructional methods, strategies, and learning supports with students with ASD. The findings suggest that when the goals of professional development are to specifically increase educator repertoires in knowledge of autism and educational treatments, self efficacy and frequency of use for applying instructional methods, strategies, and learning supports to students with autism the blended curricular model of professional development for teaching students with autism may be effective.

Keywords: Teacher Repertoires, Autism, Professional Development, Teacher Training

Introduction

Autism is one of the fastest growing disorders. Within the last ten years annual growth in the diagnosis of the disorder has increased by 17% (Autism Society of America, (ASA) (2006). According to Centers for Disease Control and Prevention (CDC, 2007), 1 in every 150 children are diagnosed with autism. The CDC (2007) reports that 1 to 1.5 million Americans has an autism spectrum disorder. The current prevailing view of autism considers it to be a spectrum disorder in which symptoms and characteristics are defined by a certain set of behaviors that present themselves in a wide variety of combinations and degrees ranging from mild to severe (ASA, 2005; APA, 1994). The diagnostic criteria are abnormal functioning in all three areas of social interaction, communication, and restricted and repetitive behavior (APA, 1994). The diagnostic characteristic of social interaction was defined as marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction, failure to develop peer relationships appropriate to developmental level, a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people, (e.g., a lack of showing, bringing, or pointing out objects of interest to other people), and a lack of social or emotional reciprocity (APA, 1994). Communication impairments are essential criteria to the diagnosis of autism and define autism by marked impairments in this area.

Specifically qualitative impairments in communication as manifested by at least one of the following: delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime), in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others, stereotyped and repetitive use of language or idiosyncratic language, lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level (APA, 1994). Additionally, a diagnosis of autism also includes criteria defined as restricted repetitive and stereotyped patterns of behavior, interests and activities, and is classified as being manifested by at least one of the following: encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus, apparently inflexible adherence to specific, nonfunctional routines or rituals, stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole-body movements), and persistent preoccupation with parts of objects (APA, 1994).

The diagnostic characteristics of autism are exhibited disparately across individuals with autism and are therefore representative of the disorder being a spectrum disorder. As a spectrum disorder, autism is considered a heterogeneous disorder in which disparity occurs as variability of characteristics, symptoms, and behaviors in elevated patterns of occurance, co-occurance, and severity (ASA, 2006) and therefore termed Autism Spectrum Disorder (ASD). Children and adolescents with ASD require specialized treatment and support from their schools and educators due to the distinct and heterogeneous learning needs. Due to the nature of the learning needs of students with ASD it is necessary that educators receive autism-specific preparation and professional development. Furthermore, preparation and professional development that addresses the learning needs of students with ASD as they age and transition into adolescence and adulthood is also needed.

Due to the increase in prevalence of autism, the heterogeneity of the disorder, and the limitations of educator preparation, it is important to investigate whether providing instruction in blend of various research-based methods and strategies in which to utilize in teaching students with ASD. This study aimed to address this need by providing educators a comprehensive curricular model of instruction and determine whether this model can be used to increase educator repertoires in instructing students with ASD. Specific focus is on use of a this blended model of professional development in regard to increasing knowledge of autism, self efficacy of use of instructional methods, strategies and supports, self report of use of instructional methods, strategies and supports, and application of instructional methods, strategies and supports with students with ASD. Specific research questions were:

1. Do participants pretest measures scores differ significantly from posttest measures scores of a) educator knowledge, b) educator self efficacy , c) educator self report of use of instructional methods and strategies and learning supports, d) educator application of instructional methods, strategies, and supports to hypothetical cases of students with ASD?
2. Does application of instructional methods, strategies and supports to hypothetical cases by educators differ significantly for students with mild/moderate and severe levels of ASD?
3. Are there significant correlations between a) educator knowledge, b) educator self efficacy , c) educator self report of use of instructional methods and strategies and learning supports, d) educator application of instructional methods, strategies, and supports of students with ASD?

Method

Recruitment of educators was conducted by advertising with local school districts, educational agencies, and universities and included educators who taught in various settings including school-based specialized classes and programs, inclusion programs, preschool integrated school settings, center-based early intervention programs, and home-based programs. A screening questionnaire was administered to determine demographic variables for each participant. The demographic characteristics measures were coded to form nine categorical variables.

Of the 159 participants registered for the training, 98 participants completed the screening questionnaire, the pretesting, the training and the post testing. In regard to level of education, 12 participants held a Bachelors degree in special education, 9 participants were enrolled in a Masters degree program in special education, 4 participants were enrolled in a Masters degree program other than special education, 9 participants had completed a Master's degree in special education, 42 participants held a Masters degree in fields other than special education, 9 participants held a doctorate degree and 13 participants held a high school diploma.

In regard to years of experience teaching in special education, 24 participants had 1-5 years teaching experience, 13 participants had 6-11 years of teaching experience, 19 participants had 12 or more years of teaching experience, 18 participants had teaching experience in a discipline other than special education, 24 participants did not have teaching experience. In regard to specialized training previously received in working with individuals with autism, 16 participants had completed training in workshops in TEACCH, 17 participants had completed extensive training in TEACCH, 48 participants had completed training in workshops in Applied Behavior Analysis (ABA), and 17 participants had completed extensive specialized training in ABA. I

In regard to teaching and professional certification status, 22 participants did not have a teaching certification, 3 participants had applied for initial certification in special education, 3 participants had an initial certification in special education, 19 participants had a permanent certification in special education, 34 participants had other teaching certifications and/or professional licenses in the field of education, and 17 participants did not have a teaching certification and/or professional license.

In regard to type of disability and previous experience and or knowledge of, 7 participants identified learning disability, 2 participants identified physical or mobility disability, 3 participants identified intellectual disability, 2 participants identified autism or PDD, 7 participants identified other disabilities and 77 participants identified themselves and not having previous experience or knowledge of a disability. In regard to having a family member with a disability, 50 participants did not have a family member with a disability and 48 participants did have a family member with a disability. In regard to the age range of the 98 participants, 19 participants were 21-26 years old, 8 participants were 27-32 years old, 11 participants were 33-40 years old, 60 participants were 41+ years old. In regard to gender, 94 participants were female and 4 were male. In regard to geographical location, 21 participants lived in an urban setting, 75 participants lived in a suburb setting, and 2 participants lived in a rural setting.

Participants completed the preassessment prior to beginning the training sessions and a post assessment which was the same as the preassessment upon completion of the training sessions. Participants of this training were provided with twelve sequential training sessions. The first six sessions were held one Saturday per month during the academic year, with the six additional sessions held on weekdays during the summer months. The professional development included presentations and workshops by top professionals in the field of autism and leading researchers and experts on various subjects related to education and intervention of individuals with ASD. Participants also received various instructional materials including textbooks and DVDs related to each session topic at the completion of each training session. Training sessions were held in a lecture hall on campus of the principal investigator's university. The time of each session was 8:30am -3:30 pm. Lunch was provided to each participant. The specific schedule was as follows:

Session 1: Nature and Needs of Individuals with ASD
This session provided an overview of Autism Spectrum Disorders including differential diagnosis of Autism, Asperger's Syndrome, Rett Syndrome, Childhood Disintegrated Disorder, and Pervasive Developmental Disorder Not Otherwise Specified. Characteristics of individuals as manifesting in different degrees of autism from early childhood through adolescence were examined. Theories of etiology, development, behavior, neurological issues, theoretical perspectives, and implications for family impact were reviewed. The objective of this session was that participants would gain knowledge of autism spectrum disorders, an understanding of the characteristics, treatment, and etiology of autism spectrum disorders and awareness of the impact of autism spectrum disorders on the individual and their families.

Session 2: Assessment and Programming Planning for Autism Spectrum Disorders
This session provided an overview of assessment tools commonly used with students with autism spectrum disorders including observational methods, rating scales, standardized tests, developmental curricula and other assessment approaches; application of functional assessment techniques in the development of Individual Education Programs (IEP) and daily instruction. Progress monitoring techniques were also reviewed. The objective of this session was that participants would gain knowledge of the various methods, instruments, and curricula available to assess students with autism spectrum disorders and understanding of functional assessment for purposes of educational planning and accountability.

Session 3: Understanding and Intervening of the Social Communication Needs of Children and Adolescents with ASD
This session focused on typical and atypical language development with a focus on behavioral, biological, cognitive, and perceptual bases of language. The use of augmentative communication devices (high and low-tech) and sign language with individuals with ASD was explored. Approaches for addressing social communication needs of students throughout the range of autism spectrum disorder were also included.

The objective of this session was that participants would gain knowledge of typical and atypical language development, understanding of the relationship between language and social communication skills as it affects students with ASD, awareness of augmentative communication devices used to develop language systems in students with ASD, and an understanding of approaches to intervene and remediate social communication needs of students with ASD.

Sessions 4 and 5: Applied Behavior Analysis (ABA) and Verbal Behavior Interventions for Children and Adolescents with ASD

This session provided an overview of applied behavior analysis (ABA), its development, and application to autism spectrum disorders including discrete trial, pivotal response, natural environment teaching, incidental teaching, and use of functional analysis to develop behavior intervention plans. Application of basic principles of ABA to the classroom, including reinforcement, prompting, chaining, shaping, fading, stimulus control, generalization, and maintenance was examined. The continuing session (Session 5) was specifically focused on instruction in conducting a Verbal Behavior (VB) analysis and developing VB instructional programming for students with ASD. Instruction in this area included a review of manding, tacting, intraverbals and motivative/establishing operation (MO/EO) procedures.

Session 6: Integrating Academic and Life Skills into the Daily Curriculum for Children and Adolescents with ASD

This session focused on instruction in how students with ASD can be included in inclusive classrooms and also meet their Individualized Education Program (IEP) goals. Examples of accommodations and modifications and how to include individualized accommodations and modifications of an IEP within the classroom was reviewed. Instruction also included how to build life skills of students with ASD while promoting academic standards. Focus was on teaching students with ASD skills such as writing, reading, communication, and social interaction, vocational and independent living skills while holding students to high academic standards.

Session 7: Transition Planning for Adolescents with ASD

This session provided instruction in preparing students with ASD for transition from adolescence to adulthood. The learning objective for participants was to gain an understanding of Transition Law under IDEA and how it impacts postsecondary outcomes for students with ASD. Instruction included how to prepare students with ASD for adult options and activities including: post-secondary education and training, vocational training, integrated competitive employment, supported employment, continuing and adult education, adult services, independent living, and community participation. Current quality-of-life research on people with disabilities was presented and tools and strategies to achieve independent living, employment, and enjoyment and leisure activities were also included.

Session 8: Asperger's Syndrome

This session provided instruction in the characteristics, learning traits, assessment, and interventions for children and adolescents with Asperger's Syndrome. Comparison of Asperger's Syndrome and high functioning autism was examined. Curricula and strategies for pragmatic and social skill deficits were explored and application of these strategies in a variety of settings including the mainstream environment was stressed. The objective of this session was that participants will gain knowledge of Asperger's Syndrome, an understanding of pragmatic and social skill deficits associated with Asperger's Syndrome, and awareness of strategies and techniques for interventions of these learning needs to facilitate success in the general education environment.

Session 9-12: Putting Research into Practice: Educating Adolescents with Autism Spectrum Disorders

These sessions focused on current autism research and evidence-based interventions for adolescents with ASD. The topics covered during individual presentations were as follows:

Autism and Sexuality Education
Autism and Sexuality: From Adolescence through Adulthood
ESCAPE (Effective Strategy-based Curriculum for Abuse Prevention and Empowerment) Transition from School to Post-School: Best Practices for Students with ASD
A Question of Vulnerability: Discussion and Examples of Work Underway Regarding Abuse Prevention and ASD
Addressing Social Communication in Children with ASD, Application of the SCERTS Model

Preparing Teachers in ASD: Identifying the Components of Quality Teacher Education
Panel Discussion: Providing High Quality Services for Students with Autism Spectrum Disorders

Assessment instruments (*Educator Knowledge of Autism and Educational Treatment of Autism Questionnaire, Educator Self-Efficacy of Use of Instructional Methods, Strategies, and Supports for Students with Autism, Educator Self-Report of Use of Instructional Methods, Strategies and Supports for Students with Autism,* and *Performance Assessment of Application of Instructional Methods, Strategies, and Supports to Teach Students with Autism* were initially developed by the researcher based on literature about each treatment approach. To test for face validity all four assessments were presented to thirteen reviewers including teachers, clinicians, and experts experienced in both behavioral and socio-emotional approaches of instructing students with autism. Reviewers shared and aided in the revision of each item of all four assessments. Revisions made each item and assessment more specific to each dependent variable of the study. To determine validity and reliability for testing measures a split-half reliability and coefficient alpha was computed.

To measure educator knowledge, the *Educator Knowledge of Autism and Educational Treatment of Autism Questionnaire* was used. The questionnaire consists of 30 multiple-choice questions. Each question was answered with either a correct response or an incorrect response and a dichotomous scale (1 = correct response and 0 = incorrect response) was used to score responses. The maximum score for this assessment was 30 points. In summary for Teacher Knowledge the split-half reliability was .77, and coefficient alpha was .846.

To measure educator self-efficacy, the *Educator Self-Efficacy of Use of Instructional Methods, Strategies, and Supports for Students with Autism,* was administered. This instrument is a 31-item checklist in which each item was answered and rated using a Likert scale. Scoring is as follows: 3=I feel I have the knowledge and skills needed, 2=I feel I have some knowledge and skills needed in this area, 1=I feel knowledgeable in this area but I do not feel I have the skills needed, 0=I do not feel knowledgeable or skilled in this. The maximum score for this assessment was 93 points. In summary on use of instructional methods and strategies and learning supports as measured by the self-efficacy instrument, the split-half reliability was .94, and coefficient alpha was .97.

To measure educator self-report of use of instructional methods, strategies, and supports the *Educator Self-Report of Use of Instructional Methods, Strategies and Supports for Students with Autism* was administered. This instrument was a 30-item checklist in which each item was answered and rated using a Likert scale. Scoring was as follows: 4=Always, 3=Most of the time, 2=Sometimes, 1=Rarely, 0=Never. The maximum score for this assessment was 120 points. In summary on use of instructional methods and strategies and learning supports as measured by the self-report instrument, the split-half reliability was .94, and coefficient alpha was .97.

To measure educator application of instructional methods, strategies, and supports with students with mild autism versus use with students with severe autism the *Performance Assessment of Application of Instructional Methods, Strategies, and Supports to Teach Students with Autism* was administered. This instrument measured application of instructional methods, strategies, and supports to teach students identified as having autism in the mild to moderate range versus the moderate to severe range. This instrument consisted of four case studies in which two depict hypothetical students with mild to moderate autism and two case studies depict students in the moderate to severe range. A consistent set of six questions across all four case studies which were designed to measure the capacity to apply instructional methods, strategies, and supports with students with autism were presented. Responses were categorized as follows: 0= Response indicates insufficient understanding, no appropriate answers, and/or major errors. 1= Response indicates limited understanding, is incomplete, and/or contains major errors. 2=Response indicates substantial and appropriate understanding but may have minor errors. 3= Response is correct and the underlying reasoning process is appropriate and clearly communicated. Response may contain minor errors if any. The four case studies and their corresponding questions were grouped into two categories: mild and severe. Each category received a categorical score. The maximum score for each category was 36 points. Both scores were totaled yielding one composite score for a grand total. The maximum score for this assessment was 72 points. In summary the Performance Assessment of Application of Use of Instructional Methods, Strategies, and Supports the split-half reliability was .88, and the coefficient alpha was .95.

Results

The data on the effects of the training indicates that participants' knowledge post-test mean scores increased significantly. The mean score for all participants on the knowledge pre-test was (M=17.64), with a minimum score on the pre-test of 0 and a maximum score on the pre-test of 30. After the intervention the mean score for all participants on the knowledge post-test was (M=25.62), with a minimum score on the post-test of 15 and a maximum score on the post-test of 30. Results are displayed in Table 1. According to these results after participants received the introductory and foundational knowledge of ASD and educational interventions used to treat autism there was an overall mean score increase of 8 points from the knowledge pre-test to post-test.

The data on the effects of the training indicates that participants' self-efficacy post-test mean scores increased significantly. The mean score for all participants on the self-efficacy pre-test was (M=37.02), with a minimum score on the pre-test of 0 and a maximum score on the pre-test of 89. After the intervention the mean score for all participants on the self-efficacy post-test was (M=82.88), with a minimum score on the post-test of 31 and a maximum score on the post-test of 93. There was a mean increase of 45.86. Significant in these findings are that 26 participants scored between 86 and 90, while 38 participants scored a 93, indicating that 64% of the participants felt they gained the knowledge and instructional skills needed to teach students with ASD. Results are displayed in Table 1.

The data on the effects of the training indicates that participants' self-report post-test mean scores increased significantly. The mean score for all participants on the self-report pre-test was (M=36.97), with a minimum score on the pre-test of 0 and a maximum score on the pre-test of 100. After the intervention the mean score for all participants on the self-report post-test was (M=78.95), with a minimum score on the post-test of 3 and a maximum score on the post-test of 93. After the participants completed the training the self-report of the use of instructional methods, strategies, and learning supports mean score increased to 45.86. Results are displayed in Table 1.

The data on the effects of the training indicates that participants' application post-test mean scores increased significantly. The mean score for all participants on the application pre-test was (M=85.45), with a minimum score on the pre-test of 0 and a maximum score on the pre-test of 216. After the intervention the mean score for all participants on the application post-test was (M=163.66), with a minimum score on the post-test of 4 and a maximum score on the post-test of 236. After participants completed the training the application of instructional methods, strategies, and supports for students with ASD mean score increased to 78.21. Results are displayed in Table 1.

In regard to correlations between knowledge, self efficacy, self report of use of instructional methods, strategies and supports, and application of instructional methods and strategies and learning supports to hypothetical cases, a correlation matrix was calculated to determine if there were any significant relationships between the independent and dependent variables. The correlation coefficient between the variables post-knowledge and post-efficacy (r= .045) suggest a low positive relationship. An r value of .045 indicates that there is a chance that as knowledge increased, self-efficacy tended to increase. The correlation coefficient of between the variables, post-knowledge and post-application (r=.050) suggest a low positive relationship. An r value of .050 indicates that there is a chance that as knowledge increased application of instructional methods, strategies, and supports for students with ASD tended to increase. The correlation coefficient between the variables post-knowledge and post-report (r=-.007) suggest a low negative relationship. An r value of .050 indicates that there is a chance that as knowledge increased, self-report of the use of instructional methods, strategies, and learning supports tended to decrease. The correlation coefficient between the variables post-efficacy and post-application (r=.204) suggest a low positive relationship. An r value of .204 indicates that there is 4% chance that as self-efficacy increased, application of instructional methods, strategies, and supports for students with ASD tended to increase. Results are displayed in Table 2.

The correlation coefficient between the variables, post-application and post-report (r=.197) suggest a low positive relationship. An r value of .197 indicates that there is 4% chance that as application of instructional methods, strategies, and supports for students with ASD increase, self-report of the use of instructional methods, strategies, and learning supports tended to increase. The correlation coefficient between the variables post-efficacy and post-report was significant at the 0.01 level (2-tailed).

What this signifies is that 99 times out of a hundred the relationship found between the variables post-efficacy and post-report will exist. The correlation coefficient between the variables post-efficacy and post-report (r=.498) suggest a moderate positive relationship. An r value of .498 indicates that there is a 24% chance that as participants' self-efficacy increased, participants self-report of the use of instructional methods and strategies and learning supports tended to increase. Results are displayed in Table 2.

In regard to application, there was no significance difference between application of instructional methods, strategies, and learning supports when applied to students with mild to moderate range versus the moderate to severe range.

Discussion

Since autism is one of the fastest growing disorders and within the last ten years annual growth in the diagnosis of the disorder has increased by 17% (Autism Society of America, (ASA) (2006) it is critical that educators are knowledgeable and have the repertoire in which to teach and meet the needs of their students with ASD. The current prevailing view of autism considers it to be a spectrum disorder in which symptoms and characteristics are defined by a certain set of behaviors that present themselves in a wide variety of combinations and degrees ranging from mild to severe (ASA, 2005; APA, 1994). This heterogeneity of autism in which symptoms and characteristics in the areas of social interaction, communication, and restricted, repetitive, and stereotyped patterns of behavior manifest in a wide variety of combinations and degrees ranging from mild to severe (ASA, 2005; APA, 1994; WHO, 1992) has made it difficult to conduct research to determine appropriate educational treatment for individuals with ASD. Given this heterogeneous nature of the disorder a singular method that is either a behavioral approach or socio-emotional approach may not be effective for a particular behavior, skill, or individual (ASA, 2005).

Implementation of any instructional method or intervention requires that educators be trained in its effective application to meet the needs of students with ASD. Although some educators may receive training in a specific singular method they are often not required to have specific training in evidence-based practices specifically designed for individuals with autism (National Research Council, 2007). The teaching certifications required for instructing students with autism vary according to each state's specific requirements. Although some states have added certification requirements which require specific university coursework to be completed in autism others have minimized special education requirements. In many states, special education certifications are no longer a standalone certificate and teachers need to hold a general education certificate with an endorsement appropriate to the subject or grade level to be taught. This trend has further limited the qualifications of educators for teaching students with ASD. Therefore, educators may not have the teaching repertoire needed to address the heterogeneous learning needs of students with ASD.

The results of this study supported the hypothesis that educators who received training with a blended curricular model of professional development increased their repertoires for instructing students with ASD. Specifically they increased their knowledge of autism and educational treatment of autism, their self-efficacy of use of instructional methods, strategies, and supports for students with ASD, and the frequency of self-reported use of instructional methods, strategies and supports for students with ASD. Interestingly, although the application of instructional methods, strategies, and supports for students with autism did increase there was not a difference in application to students with mild autism versus use with students with severe autism. This finding indicated that participants applied the instructional methods, strategies, and learning supports for students with ASD to both students identified as having autism in the mild to moderate range and students identified as having autism in the moderate to severe range.

In regard to correlational findings between the variables of knowledge, self efficacy, self report of use of instructional methods, strategies and supports, and application of instructional methods and strategies and learning supports several relationships were suggested by the findings. The correlation findings between post-knowledge and post-efficacy suggested a positive relationship indicating that there is a chance that as participant knowledge increased, participant self-efficacy tended to increase. This finding seems self explanatory as it would seem that as the participants' knowledge increased their efficacy of use of instructional methods, strategies, and supports for students with ASD increased. The correlation findings between post-knowledge and post-application also suggested a positive relationship.

This finding suggested that there is a chance that as knowledge of autism and educational treatments increased actually applying the instructional methods, strategies, and supports for students with ASD tended to increase. This would suggest that participants were actually implementing the instructional methods, strategies, and supports for students with ASD in which they were trained in and included in the professional development sessions.

The correlation findings between post-knowledge and post-report were interesting as they suggested a negative relationship. This finding may indicate that as knowledge increased, self-report of the use of instructional methods, strategies, and learning supports tended to decrease. This may be attributed to the increase in the knowledge and understanding of the accuracy and correctness of instructional methods, strategies, and learning supports for students with ASD. This may be attributed to a decrease in self reporting of use instructional methods, strategies, and learning supports for students with ASD because participants did not report they were using a particular instructional methods, strategies, and learning supports if they had not applied it correctly.

The correlation findings between post-efficacy and post-application suggested a positive relationship. This finding indicates that as self-efficacy increased, application of instructional methods, strategies, and supports for students with ASD tended to increase. This could be contributed to that as the participant's belief and confidence in the instructional methods, strategies, and supports for students with ASD increased the more they applied them with their students with ASD. The correlation findings between post-application and post-report suggested a positive relationship. This indicated that as application of instructional methods, strategies, and supports for students with ASD increased, self-report of the use of instructional methods, strategies, and learning supports tended to increase. This would indicate that as participants increased their ability to apply instructional methods, strategies, and supports for students with ASD, they then increased their use of applying these instructional methods, strategies, and supports. The correlation findings between post-efficacy and post-report was significant and suggested that a positive relationship existed. This finding was most significant and suggested that as participants self efficacy increased they reported that they used the instructional methods and strategies and learning supports more.

Overall, the findings of this study indicated that educators can increase their knowledge of autism and educational treatment of autism, their self-efficacy of use of instructional methods, strategies, and supports for students with ASD, the frequency of self-reported use of instructional methods, strategies and supports for students with ASD and the application of instructional methods, strategies and supports to all students with ASD through use of a blended curricular model of professional development. Limitations of this study were in the areas of funding and methodology. This study's funding was limited to implementing one treatment to a relatively large group. Future research should focus on implementing a blended curricular model of professional development to increase educator repertoires for instructing students with autism spectrum disorders using a pre/post group comparison design and possibly have both a control and comparison groups in which to implement a curricular model of professional development for increasing educators' repertoires in instructing students with ASD.

Pre & Post Test	M	SD
Pre-test Educator Knowledge	17.64	4.80
Post-test Educator Knowledge	25.62	3.53
Pre-test Self Efficacy	37.02	26.77
Post-test Self Efficacy	82.88	15.60
Pre-test Self Report	36.97	33.56
Post-test Self Report	78.95	20.60
Pre-test Educator Application	85.45	65.99
Post-test Educator Application	163.66	51.37

Table 1 Means and Standard Deviations (SD) for Pre & Post Test

Scale	Post-Teacher Knowledge	Post-Self Efficacy	Post-Application	Post-Self Report
Post-Knowledge	1	.045	.050	.007
Post-Efficacy		1	.204	.498
Post-Performance			1	.197
Post-Report				1

Table 2: Correlation Matrix of Independent and Dependent Variables

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