Learn by Doing: A Collaborative Model for Training
Teacher-Candidate Students in Autism

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Abstract: With the large number of students with autism entering the educational system, the need for empirically supported treatment (EST) in the classroom and special education teachers with training in autism and ESTs is necessary now more than ever. This paper describes a collaborative model between 2 universities aimed at providing teacher-candidate graduate students training and community-based practice in an EST, pivotal response treatment (PRT). Three components of the model are described: (1) the community-based service delivery system, (2) the Masters/special education credential program and (3) training in PRT. Additionally, issues around student and family participation are discussed along with possible solutions and future directions. Finally, model benefits are described with regard to graduate students, children with autism, families and the community.

The prevalence of children and youth diagnosed with an autism spectrum disorder (ASD) has increased at an alarming rate. Recent statistics from the Centers for Disease Control and Prevention indicate that as many as one in every 150 children today may be affected. The number of cases of autism now surpasses that of all types of cancer, diabetes and AIDS combined. 560,000 individuals in the US birth–21 years of age are living with ASD. Of the children born in the US in 2007, more than 26,000 will eventually be diagnosed with ASD (Centers for Disease Control and Prevention, 2007).

Due to this increase, along with an unfortunate longstanding tradition and legacy of accepting, condoning, and even promoting methods and strategies that lack efficacy and proven utility (Gresham, Beebe, Frankenberg, & MacMillan, 1999; Simpson, 2005), there is a need for widespread access to empirically supported treatments (EST’s) for these children and their families. Even with the body of research supporting behavioral analytic intervention procedures as effective EST’s for individuals with autism (DeMyer, Hingtgen, & Jackson, 1981; National Research Council, 2001), effective dissemination of these EST’s has not grown along with the disorder, creating a large need for families often drawn to a myraid of highly promoted, non-efficacious treatments (Cronen, Grether, Hoogstratge, & Selvin, 2002; Koegel, Koegel, Harrower, & Carter, 1999; Sperry, Whaley, Shaw, & Brame, 1999; Stahmer & Gust, 2001; Symon, 2001). Although the gap between research and practice in education has been well-documented (Brown, Odom, & Conroy, 2001; Iovannone, Dunlap, Huber, & Kincaid, 2003; King-Sears, 2001; Lerman, Vorndran, 2009; 44(3), 343–355 © Division on Developmental Disabilities

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Addison, & Kuhn, 2004; Simpson, McKee, Teeter, & Bevtien, 2007; Snell, 2003; Stahmer, Collins, & Palinkas, 2005), bridging the research-practice gap in the field of special education is even more difficult due to a number of challenges present in the training of special education teachers.

Problems with Special Education Certification

One problem cited by the Study of Personnel Needs in Special Education (SPENSE) (2002) and others (Scheuermann, Webber, Boutot, & Goodman, 2003; U.S. Department of Education, 2002) is the chronic shortage of special education teachers (Bergert & Burnett, 2001; Billingsley, 2004; Boyer & Gillespie, 2000; Gersten, Keating, Yovanoff, & Harmis, 2001; Sach, 1999). This shortage has prompted states to hire uncertified or partially certified teachers and has also prompted a movement to alternative certification programs. The goal of such alternative programs is to shorten the length of time required to earn a teaching certificate. Although students in alternative programs perform adequately in terms of pass rates on certification exams (U. S. Department of Education, 2002), research conducted by Darling-Hammond (2002) suggests that these students are less able when evaluated on measures of student performance.

A second problem stems from the nature of the teacher certification programs themselves. While certification requirements vary from state to state, the shortage of special education teachers nationwide has produced a trend favoring noncategorical or multicultural certification where disability-specific training and licensure is not provided (Mainzer & Horvath, 2001; National Information Center for Children and Youth With Disabilities [NICCY], 1997; Scheuermann et al., 2003). Those concerned with these traditional and alternative special education teacher preparation approaches question the ability of such programs to provide instruction in the range of specialized skills needed by special education teachers whose students enter classrooms with widely diverse backgrounds and with widely diverse needs (Kleiner, Porch, & Farris, 2004; McCliskey, Tyler, & Flippin, 2004). In particular, traditional categorical and alternative “fast track” programs may be of limited usefulness for special educators who serve specific populations with significant need, such as students with autism and/or behavioral challenges (Henderson & Klein, 2005) unless such programs include autism-specific training or training in applied behavior analysis.

Autism Specific Training

A major concern related to the training of special education teachers is the lack of training specific to the education of children with autism. Given the complexity, comprehensiveness, and spectrum of autism symptoms, coupled with the fact that only a small percentage of the vast array of interventions for children with autism are supported by rigorous research (Simpson, 2005), there is also a need to ensure that teachers in training learn about those interventions that are empirically validated (Lerman et al., 2004).

In an effort to create a model that would attempt to address these concerns, two universities collaborated and adapted an existing non-categorical special education teacher training program in mild to moderate disabilities to include training in an EST for children with autism. Since one of the universities was well-known for the development of the EST, Pivotal Response Treatment (PRT), this was the method chosen to include in the teacher training.

PRT is documented as one of only four of 33 interventions/treatments to receive the highest ranking, a “scientifically based practice,” in a study conducted by Simpson (2005). PRT is a comprehensive service delivery model that uses both a developmental approach and applied behavior analysis (ABA) procedures and aims to provide opportunities for learning within the context of the child’s natural environment. Pivotal areas are those that, when targeted, lead to large collateral changes in other-often untargeted-areas of functioning and responding. Pivotal responses, once acquired, result in widespread and generalized improvement in children with autism (Koegel, Openden, Fredeen, & Koegel, 2006, p. 4). PRT is also characterized by the coordinated involvement of relevant stakeholders (e.g., parents, siblings, teachers, consultants, peers) so that the intervention
implemented is consistent across people and environments thus providing the child with the most comprehensive of treatments with the primary goal of movement toward a typical developmental trajectory (Koegel et al.).

This article describes the collaborative effort to: 1) train teacher-candidate graduate students in EST’s for children with autism, and 2) provide empirically supported treatments to local families with children with autism. Also described are issues that arose during program implementation, and the benefits the program yielded for teacher-candidate graduate students, children with autism and their families.

The Collaborative Model

The following section will describe: a) the nature of the two universities participating in the collaborative model, b) the three tiered service delivery system used by the “research university” to provide PRT to families, c) the Integrated M.A./Special Education Credential Program of the “teacher prep university” and d) the inclusion of teacher-candidate graduate students in the three tiered service delivery model.

Universities

The program was delivered by two collaborating western institutions of higher education located 100 miles apart. One university is a master’s-granting university with a primary mission of training teachers. This university will be referred to hereafter as the “teacher prep university.” Although, clinical services are available to families in the “teacher prep university” county, this university had not been active in the provision of PRT or any other EST for families with children with autism prior to the start of the program.

The second university is a research institution with an established autism research center, clinic, and a doctoral training program in special education with a specialization in autism intervention. This research center and clinic is particularly well known for its work in PRT. Clinical services are provided by this research center both to local families as well as to families located in other states and countries. This university will hereafter be referred to as the “research university.”

Community-based Model and Training of Teacher-Candidate Graduate Students

The three tiered service delivery model used to deliver clinical intervention for children with autism and training for their families by the “research university” was adapted to fit the collaborative, two university project.

Tier One

In Tier One, undergraduates or B.A. level persons receive clinical training in PRT and provide direct support to children with autism. Tier One clinicians receive initial didactic training and then videotape themselves as they work with children each week and bring their tapes to supervision/training sessions held each week with their Tier Two supervisor (see description of Tier Two below). Tier One clinicians are paid employees whose salaries are generated by State monies used to support services for children with disabilities and their families.

Tier Two

In Tier Two, M.A. level clinicians with both training and experience in PRT provide parent/family training as well as view and provide feedback on videotaped footage provided by Tier One clinicians. Tier Two clinicians also provide direct support to children with autism as needed. As they have more training and are responsible for parent training, Tier Two clinicians are paid employees at a higher rate of pay than Tier One clinicians.

Tier Three

In Tier Three, a Ph.D. Level or doctoral candidate clinician views videotaped footage of all children on a weekly basis, provides feedback and supervision to Tier Two clinicians, and visits families/children on an as-needed basis. As the Tier Three clinician is the person primarily responsible for the clinical program and has advanced training, s/he is paid at a higher rate of pay than Tier Two clinicians.
### TABLE 1

Theoretical and Practical Components of Program: Autism Emphasis

<table>
<thead>
<tr>
<th>Theory</th>
<th>Practice</th>
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</table>
| **Fall**
Objectives
1. Learn basics of qualitative and quantitative research methods
2. Learn to access the research literature
End product
Literature review related to student interest
| **Fall**
1. Students matched to families
2. Students meet families and begin to visit families weekly
3. Students receive a manual describing the procedures of Pivotal Response Treatment
4. Students observe intervention by trained clinicians

| Winter
Objectives
1. Learn to evaluate published research
2. Begin to learn how to formulate a research study
End product
Inquiry Project Begun
| Winter
1. Students learn to assess child/family needs and identify intervention goals
2. Students are introduced to PRT procedures
3. Students begin implementing PRT procedures and receive weekly videotape supervision

| Spring
Objectives
Students complete research project:
- A research question
- Dependent & Independent Variables
- Procedure
- Baseline & Intervention data
End product
Present research projects to families and local and educational community
| Spring
1. Students learn to evaluate their intervention
2. Students continue to provide empirically supported treatment for children with autism

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**Integrated M.A./Special Education Credential Program**

Approximately 15–20 graduate students are carefully selected each year from a competitive pool of applicants to participate in a one-year, full-time professional training program. Successful completion of the program results in both an M. A. in Special Education with autism as the special education emphasis area and a non-categorical preliminary special education credential for mild to moderate disabilities.

To be admitted into this program, all applicants must have: (a) experience with children and youth both with and without disabilities, (b) successfully completed pre-requisites including coursework and tests (e.g. basic skills, subject matter competence exams, health and fingerprint screening) and (c) demonstrated the potential to become educational leaders. Admitted teacher-candidate graduate students represent a range of age-ranges and experiences.

The program is cohort based and courses are strategically clustered across the year in a way that maximizes the opportunity for student learning. The program consists of 12 courses and related fieldwork experiences. The courses and fieldwork are spread equally across the academic year. The first cluster of courses (fall quarter) emphasizes family systems theory, collaboration, assessment and instruction of culturally and linguistically diverse students and an introduction to research methods including the collection of baseline data. The second cluster of courses (winter quarter) emphasizes positive behavioral support (PBS), the initiation of a PRT intervention, current educational issues and teaching methods for students with mild to moderate disabilities. The last cluster of courses (spring quarter)
concludes the program with an emphasis on educational assessment, student teaching, and analysis of intervention data taken while implementing PRT. Major themes embedded across the cohort-based program include: a) collaboration, b) family support, c) positive behavioral support and d) autism/PRT.

Inclusion of Teacher-Candidate Graduate Students in Service Delivery Model

As part of the integrated M. A. in Education/preliminary special education credential program (in mild-moderate disabilities), teacher-candidate graduate students at the “teacher prep university” are required to take a three course, year-long, research sequence. As a function of this sequence, “teacher prep university” graduate students receive didactic training in PRT, are subsequently matched with families, and begin their year-long “learn by doing” practicum in the provision of intervention using PRT. A doctoral student from the “research university” nearing degree completion serves as “teacher prep university” adjunct faculty and assists in teaching the courses in the research sequence that focus on empirically supported treatment methods and supporting families of children with autism. The description that follows focuses on the portion of the integrated M.A. in Special Education/preliminary Special Education Credential program that addresses training in autism (See Table 1).

First 10 Week Period

During this first 10 week period (fall quarter), the program plan combines both academic/theoretical and clinical work in autism. In their academic/theoretical work, students: a) learn the basics of single subject research, b) learn the basics of PRT, c) learn to access literature in the area of autism, and d) learn how to write literature reviews and evaluate research literature.

Simultaneously, teacher-candidate graduate students gain clinical experience. They are organized in pairs, and each pair is assigned to one family. In their clinical position, the teacher-candidate graduate students: a) become members of existing family support teams organized by the “research university”, b) observe trained clinicians supporting children using PRT, c) establish a schedule of weekly visits, d) support families in meaningful ways that preclude expertise in PRT, and e) collect videotaped baseline data of themselves as they provide generic support to the children with autism.

Second 10 Week Period

The second ten week phase (winter quarter) also involves a combination of academic/theoretical and clinical work. Academically, students: a) continue their learning regarding how to evaluate published research, b) are given didactic instruction in PRT procedures, c) learn how to formulate a research question and d) plan a single subject research study. Clinically, students: a) learn to assess child/family needs and identify intervention goals, b) begin to implement PRT procedures, and c) receive weekly videotape supervision on their performance. Videotape supervision occurs in the context of their university course where each pair of students brings videotape footage filmed in the family context the previous week. Based on “research university” adjunct faculty feedback provided to each student pair, student pairs then adjust and improve their ability to employ PRT during the following week. Students communicate with families on an on-going basis. The student-provided PRT support, thus, provides families with no cost, “value added” extra hours of PRT that overlaps with the support provided by trained clinicians already being provided by the “research university” in the community-based service delivery model.

Third 10 Week Period

In the third 10 week phase (spring quarter), teacher-candidate graduate students continue implementation of the intervention weekly. As in the second 10 week period, graduate students: a) present videotape footage and other data with analysis to faculty members, b) adjust their clinical methods based on faculty feedback, and data analysis, and c) communicate with families on an ongoing basis. An expectation in this period is that the students
become more active participants in videotape analysis. In addition, teacher-candidate graduate students conclude their training by presenting both written summaries and Microsoft PowerPoint presentations of their data analysis and conclusions.

**Issues and Adjustments**

As the collaborative model evolved, program staff made adjustments to better meet the needs of the teacher candidate graduate students and the families and children with autism. This section will describe the issues that arose and the adjustments recommended for improved program success.

**Teacher-Candidate Graduate Students**

The issues that arose for the graduate students and faculty included: a) the overall stress encountered as part of the training program, b) logistical difficulties in matching teacher candidate graduate students with families (time available, geography, age, sex, and characteristics of child etc.) and c) personal characteristics/"goodness of fit".

**Stress**

Participating in a one year integrated training program leading to both an M. A. in Special Education and a preliminary special education teaching credential is a time intensive experience. Given both the "fast track" nature of the 10 week quarter system, programmatic requirements to assume leadership roles in class as well as participate in year-long, "learn by doing" fieldwork placements in both schools and with families, students were challenged to exercise time management as well as to maintain the level of energy needed to fulfill all requirements. This resulted in reported stress for most teacher-candidate graduate students. In addition, the cohort nature of the program (with each course offered only one time per year and the consequent necessity to wait a calendar year to complete or retake any course not taken or completed) and the high level of performance expected (overall 3.0 GPA), intensified the stress for some students who had either underestimated the demands of the program or incurred health problems over the course of the year.

**Stress solutions.** Efforts to ameliorate this stress consisted of a collaborative effort to build the course of study and provide student advisement. Courses were collaboratively planned by faculty so that they could be offered in a logical sequence and so that students could see the interconnectedness of the subject matter. Collaborative planning also enabled faculty to view learning outcomes across a series of courses vs. course by course, and space major assessments across the term. For example, one faculty planning session resulted in a decision to overlap the readings from one text in two courses being concurrently taught—family support and collaboration.

As the training program is truly a "program" and not just a series of courses, and as expectations for student initiative and performance are high, the nature and expectations of the training program along with faculty and student responsibilities was presented to students both individually, and as a cohort, at multiple points. These points included program information meetings for potentially interested candidates, pre-program counseling for admitted students, orientation seminar immediately prior to the beginning of the program, individual meetings as per faculty or student request, planned class periods to elicit feedback, formative assessments (See Table 2 for The Scholar Pretest) and intermittent informal conversations during social opportunities. In addition, faculty communicated regularly with both participating mentor teachers and families of children with autism to gather information about teacher-candidate graduate student performance and stress level which increased predictably as each quarter progressed.

Through the aforementioned efforts to frequently meet with students and to create a "cohesive" program, students' stress level may have been lowered. Despite these efforts, however, it was evident that some of the students still experienced difficulty. Students, used to taking single courses and being told what to do, were less familiar with having to make connections between and among courses and to participate actively in their own learning. While the stress level
TABLE 2

Scholar Pretest

Directions: Rate yourself on each of the following items from 1 (low) to 5 (high).

<table>
<thead>
<tr>
<th>Item</th>
<th>Low</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Skill in managing positive environments for all students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Knowledge of connections between preventing discipline problems and curriculum, instruction, and management.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Knowledge of general information on disability, disability policy and laws relating to special education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Skill in preparing instruction to meet the needs of students with disabilities in general education classrooms.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Knowledge about the structure of language and the process of acquiring a second language.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Knowledge of instructional and assessment practices for English Language Learners (ELL).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>7. Knowledge of cultural diversity, cultural awareness, and culturally responsive schooling.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>8. Knowledge of contemporary issues facing American Education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>9. Skill in diagnosing and remediating reading problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Knowledge of reading instruction.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>11. Knowledge of ethical and legal practices in special education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>12. Skill in applying the Family Systems Framework.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>13. Knowledge of the essential components of an Individualized Transition Plan.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>14. Knowledge of norm referenced, criterion referenced, and curriculum based assessment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Skill in interpreting student assessment data.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>16. Skill in designing instructional programs based on student assessment data.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>17. Knowledge of instructional strategies for students with mild/moderate disabilities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Knowledge of organization of classroom environments for students with mild/moderate disabilities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>19. Knowledge of school collaboration activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>20. Skill in conducting school-based collaboration activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>21. Skill in using effective communication, interpersonal, and problem solving skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>22. Skill in searching professional literature.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23. Skill in using Pivotal Response Training (PRT).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>24. Skill in designing, implementing, and interpreting action based research.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

seemed in some cases intensified, in challenging students to participate actively in their own learning, faculty hoped to stimulate life-long learning.

Logistical Difficulties in Matching Teacher-Candidate Graduate Students with Families

Matching teacher-candidate graduate students with families involved several factors: a) time, b) geography, and c) “goodness of fit” between the personal characteristics of teacher-candidate graduate students and the families and their children with autism.

Time. The time available for teacher-candidate graduate students and children with autism to work with one another was limited. Graduate students had class beginning at 4:10 p.m. four days/week. Children with autism often had multiple appointments after school (2:00 p.m. and later) several days/week with speech therapists, occupational therapists, or other therapists.

Geography. In addition, even though graduate students and children with autism all
lived in the same county, the county encompassed 3600 square miles with driving distances between families ranging up to 60 miles. Given the time constraints for both teacher-candidate graduate students and children with autism, geography was an important variable when establishing "matches."

"Goodness of fit" between teacher-candidate graduate students and families. Finally, it was challenging to anticipate the "goodness of fit" with regard to personal characteristics during the matching process. Over the course of the program, some teacher-candidate graduate students seemed more interested and/or more able to function as clinicians and interact with children with autism and their families than others. Although initially no data were taken on this phenomenon, many teacher-candidate graduate students described feeling "nervous" or "anxious" in the initial stages of interacting with families and providing generic support for children with autism. For their part, some participating families also reported some concern over the students' ability to provide support for their child in the home. Over the course of the year, as they became more knowledgeable in the areas of family systems theory, PBS, and PRT, the students' sense of nervousness dissipated and families reported more confidence in the students' abilities. In many cases the teacher-candidate graduate students and families developed friendships and have remained in contact years after they completed their program. In a few cases, discomfort continued on the part of the student or family and required additional involvement by faculty members (see below).

Logistical Solutions in Matching Teacher-Candidate Graduate Students with Families

Logistical difficulties were initially addressed on a case by case basis. There were, however, enough commonalities to eventually result in programmatic changes important to consider when implementing a program of this nature. These are detailed below.

Time. With regard to the students' limited time, in cases where children with autism had no free period of time between the hours of 2 and 3:30 p.m. during the week, teacher-candidate graduate students provided support on Saturdays. In other instances, faculty members "pushed back" the start time for particular courses from 4:10 to 4:50 or 4:45 to accommodate student and family schedules. After the second year of the program, faculty moved the start time for university coursework back one hour from 4:10 p.m. to 5:10.

Geography. In terms of geographic distance that separated teacher-candidate graduate students from families with children who had autism, faculty began by placing students who lived or worked in communities farthest from the university with families who also lived in those same, more geographically distant communities. Then, once the logistically difficult matches were made, faculty placed the remainder of the teacher-candidate graduate students who lived closest to campus.

"Goodness of fit" between teacher-candidate graduate students and families. With all families parental preferences (e.g., preference for a particular sex or level of experience) were taken into account when matches were made. In an effort to increase "goodness of fit" between family/child and teacher-candidate graduate students, faculty increased their contact with families to more closely monitor family-graduate student interactions. This included regular contact made in person, via telephone or via e-mail. In addition, after the second year of the program, instead of matching one graduate student with one family, two graduate students were paired and then each pair was assigned to a family. This solution simplified matching and facilitated "goodness of fit." Matching pairs of teacher-candidate graduate students with a family helped lessen student anxiety.

Even after these adaptations, however, problems persisted. For example, one family during the program's three-year history asked that a teacher-candidate graduate student not return to their home to provide services. Although these instances of poor matches are very infrequent, they create substantial difficulty and unneeded stress for families. In an effort to identify students who may need extra support in order to function successfully in providing clinical support to children with autism faculty plan to implement an additional strategy. Faculty will create early opportunities in school settings to observe teacher-candidate graduate students working with small groups of children, and where, possible, chil-
Children with autism. If, through these observations and subsequent conversations with teacher-candidate graduate students, faculty members determine that “hands-on” work with families and children may not be appropriate for particular teacher-candidate graduate students, those graduate student will be given the opportunity to support families of children with autism in other important ways such as organizing and conducting sibling support groups.

**Children and Families**

Time availability and family satisfaction arose as areas that needed to be addressed for the families with children with autism.

**Time.** Time availability was also a constraining factor for families and children. Lack of available time was addressed on a case-by-case basis but, in cases where family schedules were too full, participation was not possible.

**Family satisfaction.** The second issue that arose involved family satisfaction. That is, families differed in their level of satisfaction. Dissatisfaction with the training program, although infrequent, sometimes resulted in a family exiting the program. As the “research university” was one of many providers of service, families were able to switch from one provider to another. Reasons for switching to another service provider included lack of satisfactory progress toward designated goals, desire for more hours of support than could be provided, and differences in philosophy regarding behavioral intervention. In one case, for example, the family was unable to participate at home as intervention agents. As parents are viewed as an integral part of their child’s program and as primary intervention agents in the PRT model (Koegel et al., 2006), this served as a cause for the parents to change service providers.

In an effort to address the family satisfaction, faculty members will begin administering The Family Partnership and Quality of Life Survey (Beach Center on Disability, University of Kansas, 2003) to participating families. This survey will be administered each year at the onset of the program and again as the academic year comes to a close. The purpose of the Family Quality of Life Scale will be to measure if, as a result of the autism support services provided, a family’s quality of life had improved. Families are asked questions about a) the services they receive or need, b) how families feel about the main person who works with them and their child, c) things that make life together as a family good, and d) information about the families in general. Based on the results of the Family Quality of Life Scale, faculty members will review both what services are provided, who is providing them, and how they are provided. and make adjustments as necessary in order to better meet family needs. For example, if a family marked “receives behavioral support but not enough”, the number of hours of behavioral support could be increased.

**Unresolved Issues and Recommendations**

Unresolved issues fall into two categories: a) university issues and b) state agency disability funding issues.

**University issues.** University issues were largely the result of the small nature of the special education program at the “teacher prep university”. Small programs by definition mean that more responsibilities fall on fewer people. In the case of this program, with only two tenure track faculty members, the program’s very existence was completely dependent on the extra time the two faculty members were willing to devote. In addition, since the adjunct faculty member providing supervision for the children’s programs was based at the “research university” (located 100 plus miles away from the participating families), it was difficult to maintain ideal levels of supervision and contact with the families.

**University recommendation.** A third tenure track faculty member at the “teacher prep university” with expertise in autism would help ensure the institutionalization of this program.

**State agency issues.** As the state agency authorized and paid providers, such as the autism center at the “research university,” to provide services to families with children who have disabilities, their participation was essential for the training program’s existence. Challenges presented in working with this agency included: 1) their schedule of meetings and 2) their vendor reimbursement rate.
The local office of the state agency’s requirement for face-to-face quarterly meetings for every child exacerbated the issue of limited time. The practice of holding face-to-face quarterly meetings, vs. telephone or web cam conferencing, was determined locally and was not a procedure that was practiced statewide. While time consuming for local service providers, this practice worked an undue hardship on “research university” staff as they spent four or more hours on the road in order to attend each of these meetings.

Service providers that are authorized by the local branch of the state developmental services agency are reimbursed for services they deliver to children and families at relatively low pay rates. In an effort to maintain fiscal viability, service providers seek to provide service to large numbers of families using tiered service delivery systems. In tiered systems, direct service provision is provided by less well trained staff members who work for a modest hourly rate. These direct service staff, in turn, are supervised by higher paid staff persons with more experience and training. The supervisory staff persons interact directly with families on a less frequent basis.

Given the reimbursement-for-service rate provided by the developmental services agency as well as the sometimes inadequate number of hours of funded support families were allowed, all local vendored service providers are challenged to provide the quality and intensity of services necessary to achieve agreed upon goals. In addition, as mentioned above the “research university” and their supervisory staff were located 100 or more miles away from the participating families, the amount of compensation the “research university” as authorized service provider received, was barely enough to cover out-of-pocket costs.

State agency recommendations. 1) Grant a one-time funding increase to service providers based on the average rate provided to service providers statewide. 2) Grant a one-time research grant to evaluate the results of integrating teacher-candidate graduate students in the provision of services to children with autism and their families. 3) Grant yearly cost-of-living increases to all service providers. 4) Allow for phone and video conferencing for quarterly meeting and require face-to-face meetings once a year only. 5) Initiate an independent review process for families who believe the authorized number of vendored intervention hours is inadequate to meet the targeted needs of their children. 6) Lobby for the passage of a law mandating insurance companies to cover the costs of autism services.

Model Benefits

This section will describe those possible benefits for the following stakeholder groups:

a) teacher education graduate students, and
b) children with autism and their families
c) community.

Teacher-Candidate Graduate Students

Teacher-candidate graduate students benefit from this training program in many ways. First, they receive clinical training and hands-on practice in two empirically supported strategies, PBS & PRT, methodologies that will not only equip them with necessary skills needed to work in their future classrooms but will also allow them to provide state of the art services to the children they will be teaching. Secondly, they learned how to assess, to critique and to present the intervention plans they developed and implemented over the year. During this process of analysis and critique students also learned how to collect and analyze data, a skill that will improve their ability to provide effective interventions and monitor the progress of their students. Thirdly, they learned to review the literature and discriminate effective EST’s from passing fads. This important ability will serve them well when faced with a variety of choices and demands for specific intervention strategies that may or may not be empirically based. Fourthly, in times of limited state funds for schools, teacher use of EST’s in classrooms is fiscally defensible and can help position schools for both external funding and recognition. Lastly, teacher-candidate graduate students learned to support, communicate and collaborate with the families they supported.

For the majority of teacher-candidate graduate students in special education programs, “learn by doing” experience is limited to the
classroom. This program not only gave students an opportunity to support children with disabilities in the classroom and understand the teacher perspective, but also to experience disability at home and understand the family perspective. Both the setting (child’s home) and the teacher-candidate graduate students’ position as a “learner” created possibilities for: 1) parent-graduate student relationships to develop, and 2) graduate students to recognize parents as a source of knowledge on their child. These experiences may help facilitate future partnerships that are truly collaborative; partnerships where both parents and professionals view each others’ knowledge as important and/or equal as they work together to meet the unique needs of individual children. Characteristic of teacher-candidate graduate student feedback, one commented, “I learned the necessity of effective and motivating reinforcers to build a new skill that is extremely difficult for a child. I also learned the importance of involving the whole family in behavioral interventions. It also became clear to me that autism looks very different in every child . . . I realized that autism has very serious impacts on high-functioning children as well.”

Children with Autism and their Families
The first major benefit for children and families with autism was the extra support they received from teacher-candidate graduate students. The teacher-candidate graduate student support was provided at no charge to the state agency or to parents and was in addition to the amount of support they received via the state agency sponsored intervention program provided by the “research university.” Support was also provided in the form of respite services, information gathering, and advocacy. Secondly, as no service providers in the community had previously provided PRT as a choice to families, the entry of the “research university” as a service provider allowed families one more EST from which to choose.

The third major benefit for children and families resulting from the experience was the opportunity to participate in and receive research-based didactic training. The students, under the guidance and supervision of two Ph.D. level faculty members, provided clinical support to parents and children with autism that was analyzed, critiqued and improved on a weekly basis.

Community
Community benefits, although not as well defined, were clearly present. Since the program was publicized by the “teacher-prep university” it increased autism awareness in the “teacher-prep university” community. In addition to services provided by graduate students, “teacher-prep university” sponsored trainings and lectures which allowed parents and the public at large to access nationally and internationally known figures in the field, an opportunity they may not have had without this program.

Conclusion
Although data documenting the positive change both in graduate students and in the children with autism they supported are still being analyzed, the purpose of this article was to describe a) the model, b) the difficulties that arose as it was implemented, c) adjustments that were made in response to the difficulties, and d) the positive effects such a program can produce for various stakeholder groups. While this training program was not able to address all of the issues challenging special education teacher preparation programs (as described by Scheuermann 2003), it was successful in many respects. First, the training program serves as an example of how a small, non-categorical special education teacher education program, by creatively integrating M.A. and credentialing requirements and by collaborating with a neighboring university, provides teacher candidates with a level of competence in autism treatment procedures previously absent. Second, the program provides an example of how a university can deliver an integrated M.A./special education credential program within the one year timeline mandated by the state. Third the program provides empirically based support for children with autism and their families. Fourth, and perhaps most importantly, the program produces highly qualified teachers in autism; teachers, who over the course of their
careers, will support thousands of children with autism and their families.

Although the training program is a "work in progress" and will continue to be refined in the coming years, it is the authors' hope that readers will be prompted by this article to discover other ways to include autism training within their teacher training programs.

References

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