Intervention Program

for Children with Autism Spectrum Disorders in Thailand

Assistant Professor Dr. Daranee Utairatanakit

Kasetsart University Laboratory School

Faculty of Education, Kasetsart University

Bangkok, Thailand

Presented at
The Second International Forum on Education Reform:
Key Factors in Effective Implementation
2-5 September, 2002
The Ambassador Hotel, Bangkok, Thailand

ABSTRACT

Intervention Program for Children with Autism Spectrum Disorders in Thailand

Daranee Utairatanakit[1]

[1]Kasetsart University Laboratory School, Faculty of Education, Kasetsart University

The substantiated evidence of known medical conditions of children with autism and the compelling advocacy on inclusive education indicated justification for the need to develop collaborative partnerships between educational and medical professionals in researching effective educational services for those children in Thailand. The purpose of this paper is to present the findings of the intervention program for children with autism spectrum disorders at Kasetsart University Laboratory School which has been in operation since 1990. The data were collected from the academic years 1990 – 2001.

In this presentation the author discusses the model for providing inclusive education to children with autism spectrum disorders which consists of : informing and preparing everyone involved, process of students selection, cooperative relationship among school, hospital and parents, development of curriculum and instruction, staff training, and support services. The findings of the intervention program are discussed according to the following categories : characteristics of students in the program, academic achievement, changes in intelligent scores, changes in autistic disorder and feedback from teachers and parents. The school psychologist's roles as collaborator and consultant are emphasized in the discussion.

Participants will benefits by (a) learning how to work collaboratively with medical personnel in the community to simultaneously provide both educational and medical intervention to children with autism spectrum disorders in the general education classrooms; (b) discussing the role of the school psychologist as a leader in establishing an effective intervention program for children with autism; and (c) enhancing their understanding of comprehensive intervention for children with autism.

Intervention Program for Children with Autism Spectrum Disorders in Thailand

In this paper, a brief description of the program will be presented. Next, key components of the model's inclusive education for students with autism spectrum disorders will be highlighted. The outcome data accumulated over 12 years on participating students will also be reported, along with a discussion of practice and recommendations for further enhancement of the effectiveness and success of the program.

Overview of the Intervention Program

The intervention program for children with autism spectrum disorders at Kasetsart University Laboratory School, is the first program in Thailand in which educators and medical personnel collaboratively provided special education and treatment simultaneously for students with autism. The principal aim of the program is to prepare students with autism to function in a normal life style.

Description of Kasetsart University Laboratory School

Kasetsart University Laboratory School (KUS) is an educational research and development center of the Faculty of Education, Kasetsart University, Bangkok, Thailand. The KUS was established at the university in 1971 as a field-base for student teachers from the university and other institutions to gain teaching experience and to conduct research on classroom management and curriculum development. In 2001, it had an enrollment of approximately 3,217 students in grades 1 through 12 including approximately150 students with disabilities

The teachers of KUS are also Kasetsart University faculty members in the Faculty of Education. Some of KUS faculty teach courses for undergraduate and graduate students at the university. In 2001, KUS had 339 faculty, 79 were assistant professors and 6 were associate professors, 145 held bachelor's degrees, 185 held master's degrees, and 9 held doctoral degrees.

There are two special education programs at KUS. The first program was begun in 1984, which provided special education services to students with mild and moderate disabilities. Students with disabilities were included in general education classrooms and received special education services in the resource rooms. The second special education program was established in 1990 for students with more severe disabilities, especially students with autism. This second program is the focus of the intensive collaboration between educational and medical professions.

Medical and Educational Collaboration

Since 1974, the Child Psychiatric Hospital under the Ministry of Public Health, led by Professor Penkhae Limsila, M.D., has developed and maintained a program giving both medical treatment and limited educational intervention to children with autism spectrum disorders at all age levels. Children with autism receiving special education within the psychiatric hospital are in a restrictive environment. They are educated with other disabled children. However, returning children with autism, particularly high-functioning children with

autism, to the general education classroom is the ultimate goal of appropriate and effective intervention program. Realizing the importance and the benefit of inclusive education, the Child Psychiatric Hospital had attempted to integrate elementary high-functioning students with autism into general education classrooms in both public and private schools. However, their attempts were unsuccessful. Most of the students were sent back to the hospital because the teachers were unable to deal with the students' challenging behaviors. In addition, the students' development had regressed in both academic performance and social behaviors. The primary reasons for unsuccessful integration were that: special and general education teachers had little or no training in working with autistic students, lack of supportive services for general education teachers, inadequate administrative support, and ineffective collaboration among teachers, parents and medical personnel.

In 1990, Professor Penkhae Limsila, M.D. asked this author, as a school psychologist at KUS, for cooperation in conducting research on inclusive education for students with autism. The author perceived this as a challenging research project and the need to improve the effectiveness of educational services to students with disabilities in Thailand.

According to Rutter , Bailey, Bolton, & Couteur (1994) autism is now generally accepted as an organically based neurodevelopmental disorder. Rutter (1970) further indicated that about 25 % of people with autism who had no previous evidence of neurological abnormality developed epileptic attacks by the time they reached adulthood. A high proportion of children with autism have some known medical conditions that are found in autistic children with normal or near normal intelligence as well as those who were also severely mentally retarded (Steffenburg, 1991). From her extensive experience working with children with autism, Limsila (2001) also pointed out that seizures affect a significant portion of autistic children as they enter adolescence. In addition, most children with autism show symptoms of depression and anxiety disorders.

In the late 1980s, remarkable progress toward providing inclusive opportunities for young children with severe disabilities had been addressed. Special education journals published numbers of papers on inclusive schooling. While the goals and values underlying the philosophy of inclusion is laudable in the United States and other western countries, inclusive education for students with severe disabilities was a new phenomenon in educational practices and was not recognized by educators and legislators in Thailand. However, the research literature on full inclusion and students with autism spectrum disorders was very limited and the benefits of inclusive education for these students were controversial.

The substantiated evidence of known medical conditions of children with autism and the compelling advocacy on inclusive education indicated justification for the need to develop collaborative partnerships between educational and medical professionals in researching effective educational services for those children in Thailand.

With her visionary leadership, Assistant Professor Dr. Jongrak Krainam, the principal at KUS, highly supported the research proposal. Consequently, The Kasetsart University Administrative Board approved the research project. Thus, the Cooperative Program for Academic and Research in Special Education between Kasetsart University Laboratory School and the Child Psychiatric Hospital was established in 1990.

Kasetsart University Laboratory School has provided the intervention program for children with autism spectrum disorders since the academic year 1990 with the following goals:

1. To give equal opportunities to students with autism spectrum disorders to study with normal students.
2. To develop cooperation between an academic institution and a medical institution.
3. To study the development of students with autism spectrum disorders in general education classrooms.
4. To develop an effective model for providing educational services to students with autism spectrum disorders in general education classrooms.

Model for Providing Special Education in General Education Classrooms

The model for providing special education services to students with autism spectrum disorders at Kasetsart University Laboratory School is composed of:

- Informing and preparing everyone involved
- Process of student selection
- Cooperative relationships among school, hospital, and parents
- Development of curriculum and instruction
- Students' class assignment
- Evaluation of students' progress
- Teacher training and supervision

Informing and Preparing Everyone Involved

Until 1990, people in Thailand thought of special education programs as those provided in special institutions. The most common institutions were for mental retardation, visually impaired, hearing impaired, and physically impaired students. The provision of special education services for students with other severe disabilities, especially students with autism, in general education classrooms is a new phenomenon. The successful inclusion of students with autism in early elementary general education classrooms requires a level of commitment, support, and preparation by everyone involved. It is necessary to share the vision, educate and develop mutual understanding among the school's faculty, staff, and parents toward the essential features of the inclusive program implemented at KUS. Positive attitudes and proper understanding by everyone involved with students with autism not only significantly influence the effectiveness of the educational services but also impact the benefits of the whole community. The following activities were involved in informing and preparing the school community:

School personnel meetings**.** Before the implementation of the program in 1990 and the beginning of each academic school year, the school principal and Professor Penkhae Limsila, M.D. cooperatively conducted a whole school faculty and staff meeting in order to educate and build mutual understanding concerning the philosophy, objectives, implementation, and benefits of the inclusive education for students with autism.

Meeting of general education students' parents**.** At the beginning of the school year, the school principal and Professor Penkhae Limsila, M.D. conducted a meeting for the parents of elementary, especially first grade, general education students to educate and develop mutual understanding concerning the philosophy, objectives, implementation and benefits of inclusive education for students with autism at KUS. The crucial objective of this meeting was to ask for cooperation and support from the parents. Through their positive reaction toward the program, they would encourage their children to provide emotional, social, and academic support for their autistic peers.

Process of Student Selection

Five high-functioning students with autism spectrum disorders from the Child Psychiatric Hospital were recruited each year for the first grade. The criteria set for recruiting students into the program were as follows:

1. Students diagnosed as having autistic disorder or pervasive developmental disorder without mental retardation using the DSM-III or DSM-IV criteria and the students' nonverbal level of mental development.
2. Students must be between 6-8 years old.
3. Students must have a period of medical treatment and special education at the Child Psychiatric Hospital during their early childhood. They must also demonstrate academic and social readiness to attend general education classrooms.
4. The program committee responsible for student selection into the program considered the results of the medical conditions, psychoeducational evaluation, and parents' willingness.

Development of Curriculum and Instruction

Educating students with autism requires an understanding of their unique developmental disabilities including: cognitive development, language and communication skills, sensory processing, reciprocal social interaction skills, and behavioral deficits. The instructional environment and methods were designed to minimize the deficits and to promote optimal learning for each individual student. Since the students with autism were high functioning, and the ultimate goal of the program was to enable them to lead normal lives, the curricular and learning-teaching procedure were arranged as follows:

1. Thorough investigations of the students' development, medical history, physical and mental status was carried out by a child psychiatrist. Every student received routine physical examinations, careful assessment of vision and hearing, and nueropediatric assessment, including neurological examination, chromosome studies, EEG, and in some cases a CAT scan. The school psychologist conducted comprehensive individual assessment including intelligence, achievement, gross and fine motor skills, communication, social skills, and challenging behaviors. All the information was used for planning the Individualized Education Program.

2. The academic part of the Individualized Education Program was developed by modifying the instructional content and activities involving the school's normal curriculum. Accommodations were provided to meet the special needs of each student. A structured behavior therapy program was designed for each individual student. All students participated in every school social function.

3. Speech therapy services were provided for students with autism individually and in small groups according to their needs.

4. Students with autism attended summer programs both at school and at the Child Psychiatric Hospital. The summer programs provided additional learning and social activities in structured learning environments as well as in the community.

Students' Class Assignment

For the first and second grades, each classroom consisted of 5 to 6 students with autism who studied academic subjects in a self-contained class with two special education teachers. The students were integrated with other students in the arts, music, and physical education courses in general education classrooms. In these general education classrooms, special education teachers were also present to assist the students with autism to join in group activities, following class rules and regulations, and preventing the students from disturbing the classroom's learning environment. Students with autism were mainstreamed into the arts, music, and physical education classes at the beginning of the semester because social interaction with normally developing peers is valued over task achievement. Mainstreaming in academic subjects in the general education classrooms was done gradually, depending on the student's high achievement in particular areas and the student's social readiness.

All students with autism were fully included in the general education classrooms when they were in the third grade. Two to three students with autism and one support teacher were placed in each general education classroom. The support teacher was assigned to collaborate with the general education teachers in teaching the students with autism both academically and socially.

The process which was taken to ensure the successful inclusion of the autistic students into the general education classrooms, was done at the beginning of the school year:

1. Selected general education teachers who had a positive attitude toward students with autism and were willing to work with the students.

2. The school psychologist provided all of the general education teachers in each grade level, who came in contact with the autistic students, information concerning each individual autistic student.

3. The school psychologist and support teachers provided information and necessary behavioral training, so that students with autism would behave in general education classrooms. They were also prepared to handle other school routines.

4. To ensure a socially supportive atmosphere for students with autism, general education teachers and support teachers collaboratively planned and implemented an introductory discussion with normal students related to being an empathetic and supportive friend of autistic students.

Evaluation of Students' Progress

The academic achievement evaluation procedures for autistic students were the same as those used for the normal students. Both formative and summative evaluations were administered. Evaluation of academic subjects studied in the self-contained classes and the resource room was performed according to the IEP. The purpose of the evaluation was to diagnose and remediate students. The regular formative and summative tests were used to see how successful the students with autism were compared to their non-handicapped peers. The results were used as one of the criterion in mainstreaming students. The report on students' academic scores, especially those in subjects taken in the special education class, did not include scores earned in general academic behaviors such as attention span, responsibility, and group work participation. For subjects that were taken in general education classrooms, both general academic behavior and specific academic features were taken into account. All other nonacademic behaviors were closely observed and evaluated so that the behavior modification could be dealt with immediately.

Cooperative Relationship Among School, Hospital, and Parents

In general, providing education for students is the school responsibility. However, it is evident that students with autism have neurological dysfunctions and psychological disorders. Students with autism also present special challenging behaviors in the classroom. Thus, medical and psychiatric treatment was necessary for students who exhibited clinical indications. Parents played significant roles in providing teachers with specific information based on their child's social and communication strategies. So, the collaborative relationship among school, hospital, and parents was crucial for the success of the program.

The process for developing effective cooperation was as follows:

1. Monthly meetings among the school psychologist, support teachers, and parents were set up for each grade level. The meetings were individual-case conferences. The students' progress and challenging behaviors were discussed. Further intervention plans were developed on a monthly basis. These meetings helped promote communication and good relationships between teachers and parents and among groups of parents. These sessions provided an opportunity for both support teachers and parents to express their concerns, to learn useful strategies on teaching, parenting, and positive behavior management, and to network on school and family issues.
2. Monthly meetings among the program committees, support teachers, general education teachers, psychiatrists, and parents were set up at school to report on students' progress and to discuss any problems which may have occurred and the possible intervention to be taken. The meetings were individual-case conferences. All parties benefited from these meetings since professional expertise was shared. Relevant experiences and knowledge on medical and psychiatric treatment were given to educators. Medical staff also gained insight into the educational process arranged for students with autism and learned about problems encountered by students with autism when they had to adjust to the general education classrooms.

3. Both parents and teachers made appointments for additional consultation with the school psychologist who decided if any further consultation from the psychiatrist was needed.

4. There were in-service training programs for support teachers at the Child Psychiatric Hospital at the beginning of each school year. The teachers had an opportunity to extend their knowledge and innovation about treatment for students with autism.

5. Psychiatrists and the school psychologist collaboratively provided training for family members to gain knowledge, skills, and confidence which enabled them to interact pleasantly and productively with their children, to solve problems successfully, and to create desirable environments for their children's development.

6. The Child Psychiatric Hospital sent their psychiatrists and staff for special observations and participation in teaching the students with autism.

7. Psychiatrists provided medical treatment and consultation to students, parents, and teachers.

8. When students with autism presented challenging behaviors that are uncontrollable, self destructive, or injurious to others, they were treated and retrained. In the less severe cases, students continued to come to school but under the close supervision of support teachers and psychiatric nurses. In the more severe cases, students were retrained and had to attend special classes at the hospital for a period of time. The school provided learning-teaching materials if requested.

Teacher Training and Supervision

In Thailand, there was no special education training program for the prospective teachers to work with students with autism. Therefore, the teachers at KUS had very limited training and experience working with autistic students. To ensure the effectiveness of the program, the ongoing series of training, orientation, and supervision sessions were provided to both general education teachers and support teachers on the following topics:

- Characteristics of students with autism
- Physical adaptation of the classroom environment
- Effective teaching strategies for students with autism
- Inclusive techniques with autistic students
- Physical intervention
- Collaboration skills
- Language and socialization training
- Training in generalization skills
- Positive behavioral support
- Correct use of reinforcement and punishment
- Classroom observation techniques and data recording
- Classroom action research

These training and supervision sessions were conducted prior to the beginning of the school year and on a weekly basis. Weekly meetings between the school psychologist and support teachers were established for the purpose of discussing the students' progress and problems. The adaptation, modification, and accommodation of the Individualized Education Program to meet

the students' needs were revised at this meeting. The school psychologist observed the learning-teaching process in the classrooms in order to make relevant comments and recommendations for teachers in the on going supervision throughout the school year.

Follow Up and Evaluation

The findings of this evaluation are the results accumulated over 12 years, including academic years 1990 through 2001.

Students in the Program

Between academic years 1990-2001, 52 students (43 males and 9 females) participated in the program. They were enrolled in the first through the twelve grades. The first grade students ranged in ages from 6 to 8 years. The students in the program were grouped according to the following criteria:

Diagnosis based on the Association's Diagnostic and Statistics Manual, 4th ed. (DSM-IV) criteria. All students were autistic with full range of clinical features of autism described in DSM-IV: Children with abnormal development which significantly impairs communication, both verbal and nonverbal, as well as social interaction. These abnormalities, which were manifested generally before the age of 3 years, have negative effects on children's learning abilities. Other characteristics are repetitive behavior or motor mannerisms, resistance to changes in the environment or in daily routines, and abnormal responses of the sensory system (American Psychiatric Association, 1994).

Autistic disorders. According to the diagnostic classification of the Childhood Autism Rating Scales (CARS; Schopler, Reichler, Renner, 1988), 16 students were described as severely autistic and 36 students were described as moderate to mildly autistic when they first participated in the program.

Medical conditions. Thorough neurological and medical investigations indicated that approximately 60% of the students in the program had abnormal EEG. Fragile X chromosome was studied and all of the cases were negative. Two students had seizure attacks at school, a fifth grade boy and a ninth grade girl. Two students were diagnosed as having bipolar disorder and 6 students showed features of depression and anxiety disorders.

Level of intellectual functioning. Standard scores of the Mental Processing Composite (MPC) from the Kaufman Assessment Battery for Children (K-ABC; Kaufman & Kaufman, 1983) indicated that the students, when they first participated in the program, had levels of intellectual functioning ranging from lower extreme to well above average. The majority of the students, however, had average intellectual functioning.

Academic Achievement

An accumulative study performance, at the end of academic year 2001, showed that all students in the program had achieved academically at a satisfactory level. All students were able

to pass their class levels, with the exception of four students in the first and second grades who failed to adjust to the classroom situation and hence were retained in the self contained classes.

The overall study performance at the end of the academic year 2001 showed that the majority of the low intellectual functioning students with autism had an overall grade point average of 0.8 (meaning: almost satisfactory) to 2.0 (meaning: satisfactory). Those high intellectual functioning students with autism had an overall grade point average of 2.0 (meaning: satisfactory) to 3.0 (meaning: good).

Close observation found that intellectual abilities, severity of autistic behaviors, and learning ability of the students affected the academic achievement. Some low intellectual functioning students could achieve academically better than the high intellectual functioning students because of less severe autistic behaviors, better learning ability, and higher study motivation. Therefore, the teaching of learning skills, modification of learning behaviors, improvement of social skills, and monitoring emotions of the students by the general education and support teachers, school psychologist, psychiatrists, and parents proved to be essential for the academic achievement of the students.

Changes in Intelligence Score

All students in the program had taken the Kaufman Assessment Battery for Children (K-ABC) when they enrolled in the first grade and then repeated the test three years later. The results of the second tests suggested that all of the students, except for 9 students whose scores were slightly lower, had higher MPC standard scores (see details in Table 3). Out of 33 students, 15 students had their MPC standard scores increased from 10 to as high as 34 points. The results of the second test indicated that these 45 % of high functioning autistic students who had already undertaken special education and appropriate treatment for their disabilities and their special education needs, not only succeeded academically, but also improved their intellectual abilities.

Change in Autistic Disorder

When the autistic students enrolled in first grade, the school psychologist evaluated each student with the Childhood Autism Rating Scales (CARS) to classify the levels of severity. The findings noted that 16 students had severe autism while 36 students had mild to moderate autism. Thirty-three students underwent the second evaluation three years later. The new evaluation found that all of the students, fourth to twelve grade, were then grouped as “mild to moderate” autism instead of classified as “severe” autism. Students formerly classified as mild autism became non-autistic. However, the scores from the CARS indicated that all the students still displayed autistic behaviors. Nevertheless, the behaviors were considered slightly abnormal, compared to same-age normal children’s behavior, in relating to people, emotional responses, fear or nervousness, verbal communication, and levels of activities.

Observation of classrooms found interactions between students with autism and normal peers to be overwhelmingly accepted. The positive attitude and socially supported atmosphere facilitated interactions between students with autism and their normally developing peers. Normal peers served as social models and instructors for students with autism. Careful study of

the fourth to twelve graders found that the students with autism had significantly improved their communication and social skills. However, it was obvious that the fourth to twelve grade students with autism still displayed less social response as compared to normal students. In addition, the students with autism lacked group working and playing skills. The students with autism in the middle school had more problems in social interaction with their normal peers than those in the elementary level. It was observed that elementary age normal students were more cooperative and provided better support to students with autism than normal students in the middle school.

The autistic students with higher intelligence in the middle school were much more anxious to be accepted by normal peer groups than those with lower intelligence. They wanted to make friends with others but they lacked the skills to do so. It was found that autistic students with average intelligence still had difficulty understanding and interpreting social situations. They were unable to clearly communicate their needs, expectations, and feelings to their normal peers.

The findings indicated that inclusion of students with autism in general education classrooms improved the potential of the students with autism in social skills and adaptive behaviors. However, based on working experiences with this autistic group, the researcher found that appropriate social behavior and friendships did not come naturally to students with autism even in positive social climates with friendly support from normal friends. The students with autism must undertake peer one-on-one social skills instruction in real-life situations to enable them to develop appropriate social skills and adaptive behaviors. The findings also indicated that the development of social interactions of high-functioning autistic students was acquired later than the development of thinking and learning process. Consequently, the Individualized Education Program development team for students with autism must consider a structured social skill training program as important as other areas of skill development

Feedback from Teachers

All general education classroom and support teachers participating in the program reported satisfactory student progress. The teachers indicated that lectures on the organization of classroom activities, teacher training sessions, seminars on case studies, and consultation with the school psychologist were important and necessary for the successful teaching of students with autism. In addition, the positive attitude of the regular classroom teacher, the collaboration between the support teacher and the general education teacher, together with the cooperation between the faculty and the parents, played an essential part in the student's development.

The findings indicated that general education and support teachers' attitudes toward students with disabilities improved as they had worked with autistic students. Teachers reframe how they think about students who have disabilities and what they can do. Teachers discovered that autistic students had much more potential to learn and to develop than they had ever thought possible. Teachers also reported positive changes in classroom atmosphere. The presence of students with autism in the general education classroom motivated and enhanced learning experiences both academically and socially for at risk students as well as high-achieving students. Throughout the twelve years history of the program, the researcher found that the general education teachers and the fellow students maintained a positive attitude toward the

students with autism. This attitude was characterized by helpfulness, patience, thoughtfulness, and support.

Feedback from Parents

Parents of the students participating in the program were all highly satisfied with the intervention program's management. The parents reported their satisfaction on the students' progress in both academic and social skills. Parents indicated that their children in-school and out-of-school social interactions with normal peers were enhanced in the full inclusive education placement. Parents found that students with autism eagerly spent free time and enthusiastically participated in learning and social activities with normal students. Parents of students with autism also reported an increased amount of in-coming and out-going telephone calls to and from normal students. Parents of students with autism expressed great appreciation to normal students and their parents in supporting and helping their disabled children.

The parents unanimously agreed that the individual assessment and support played an important role in the success of the program. All of the parents highly valued the monthly group meetings with the school psychologist, general education and support teachers, and psychiatrists. They considered the meetings and parent training to be an essential part of the program's success. The meetings also provided useful advice and information for participating parents. The parents also considered the support shared among groups of parents of students with autism was crucial for their children development. In appreciation for the devotion by all members of KUS faculty and staff, and the progress exhibited in their children, the parents of the students with autism established a foundation to support the special education program at KUS.

Conclusion

Based upon the researcher's twelve years experience in special education and on the cooperation of the intervention program for children with autism between Kasetsart University Laboratory School and the Child Psychiatric Hospital, the researcher confidently concluded that high-functioning autistic students could successfully be integrated with normal children in general education classrooms. Hence, the heart of the education arrangement for this student group was the inclusion of students with autism with normal fellow students. Social interaction with normal peers became an essential part and had an influence on motivating the physical, intellectual, emotional, and social development of autistic students. But the success of the program also required a visionary leadership of school administrators, an effective collaboration of everyone involved with students with autism, a well-planned program, and a consistently implementation of the program across time.

The follow-up, as well as the twelve years cumulative program evaluation, convinced the researcher that the intervention program for children with autism spectrum disorders at KUS is an effective intervention model. When students with autism were included, the attitude of KUS society altered. Both teachers and normal students who have worked and grown up with autistic students have a new perspective on people with disabilities. Most teachers have become more supportive of the autistic education program over time. Normal students have become more open and accepting of differences and diversity among students.

The success of the intervention program for children with autism spectrum disorders at KUS has the potential to impact the delivery of quality education to students with severe disabilities in Thailand. The results of the program provided concrete evidence to educators and parents of students with autism that with appropriate educational and medical interventions these students were able to develop, to function in a normal life style, and to be productive citizens of the country.

This research project continues to serve as a model for providing educational services to students with autism. There are many areas concerning the development of students with autism that should be studied in-depth. Therefore, further research on students with autism is still needed to further enhance the effectiveness and success of the program.

References

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Hoyson, M., Jamieson, B., & Strain, P. (1984). Individualized group instruction of normally developing and autistic - like children: The LEAP curriculum model. Journal of the Division for Early Childhood, 8, 157 - 172.

Kaufman, A. S., & Kaufman, N. L. (1983). Kaufman Assessment Battery for Children. Circle Pines: American Guidance Services.

Limsila, P. (2001). Autism in Thailand: From theory to practice. Monographs of proceedings of the National Conference on " Teacher Doctor Parents: Dimension for Potential Development of Persons with Autism" organized by Kasetsart University Laboratory School and the Mental Health Department, (pp. 10-28). Bangkok, Thailand.

Rutter, M. (1970). Autistic Children : Infancy to adulthood. Seminars in Psychiatry, 2, 435 - 450.

Rutter, M., Bailey, A., Bolton, P., & Couteur, A.L. (1994). Autism and known medical conditions : Myth and substance. Journal of Child Psychology and Psychiatry, 35, 311 – 322.

Schopler, E., Reichler, R. J., & Renner, B. R. (1988). The Childhood Autism Rating Scale (CARS). Los Angeles: Western Psychological Services.

Steffenberg, S. (1991). Neuropsychiatric assessment of children with autism: A population-based study. Developmental Medicine and Child Neurology, 33, 495-511.

Steffenburg, S., & Gillberg, C. (1989). The etiology of autism. In C. Gillberg (Ed.), Diagnosis and treatment of autism (pp. 63 – 82). New York: Plenum Press.