From the Editor,

With support and contributions of early childhood special education professionals around the world, I am again glad to share with you the second issue of International Journal of Early Childhood Special Education (INT-JECSE). Starting with the first issue, the INT-JECSE has been recognized and is currently being indexed, abstracted, and listed in AREA SIG Communication of Research, Directory of Open Access Journals (DOAJ), EBSCO Education Research Complete (ERC), Index Copernicus, The e-Journal Gateway (J-Gate), New-Jour (Electronic Journals & Newsletters, and Open J-Gate). With your contributions, I believe that the INT-JECSE will be indexed in major journal indexes soon.

The second issue includes five articles and one book review. The first article is written by Sandberg, Norling, and Lillvist. They explore how preschool teachers experience the educational support for children in need of special support. In this qualitative study, they have found that the preschool teachers emphasize educational support to children in need of special support from two perspectives.

The second article reports a study of teaching toileting skills to children with autism. It was carried out by Kircaali-Iftar, Ulke-Kurtcuoglu, Cetin, and Unlu. They used an intensive toilet training program developed by the authors based on the scientifically supported principles of applied behavior analysis (ABA) to teach two 5- and 3-year-old boys with autism to stay accident-free between scheduled toilet visits. They have found that the intensive daytime toilet training program was successful for targeted children with autism.

Dr. Pretis, a consultant of early childhood special education, describes and discusses early childhood intervention in Austria. He overviews 30 years of development and future challenges in early childhood intervention in Austria. Dr. Rondal in the fourth article of the INT-JECSE reviews the literature on spoken language in persons with Down Syndrome. He provides with this article a life-span perspective on spoken language in persons with Down Syndrome. In the fifth article entitled planning a comprehensive program for young children with autism spectrum disorders (ASD), Smith Myles, Grossman, Ashby, and Henry outlines two compatible models for planning and implementing programs for students with ASD. The Ziggurat Model and Comprehensive Autism Planning System (CAPS) are being described with a brief case study. In the last article Guldenooglu review a book entitled “The Program Administrator’s Guide To Early Childhood Special Education” written by Janen McCracken Taylor, James R. McGowan, and Toni Linder and published by Paul H. Brookes Publishing Co. in 2009.

By looking forward to receiving contributions of professionals of Early Childhood Special Education around the world, I do appreciate very much those who contributed in the second issue and those who will contribute in the future issues.

Looking forward to meeting you again in June 2010.

Ibrahim H. Diken, Ph.D., Anadolu University
Editor-in-chief, INT-JECSE
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Teachers’ View of Educational Support to Children in Need of Special Support

Abstract

The aim of this study was to investigate, analyze and describe how preschool teachers experience the educational support for children in need of special support. In this interview study, the preschool teachers emphasize educational support to children in need of special support from two perspectives. In the first perspective, the preschool teachers stated that they don’t do anything unique for children in need of special support, versus the view that the children need and receive more help from the staff in everyday preschool activities. In the second perspective, the preschool teachers point out the specific educational support within two themes, indirect and direct support. This study has implications for both practice and theory as it increases the knowledge and understanding about educational support that children in need of special support are offered in preschool today.

Keywords: children in need of special support, preschool education, educational support, preschool teacher

Background

This study is a part of a project entitled 'Early intervention for young children in preschool – general and specific support'. The project's overall purpose was to examine educational activities that are offered to young children (1-5 year olds) in need of special support within Swedish preschools.

Preschool education and inclusive practice in Sweden

In Sweden, 86% of all children aged between 1 and 5 attend preschool. A free general preschool is offered for 4-5 year olds. When children are six years old, 95% of them go to preschool classes, and most of the staff members in preschools (96%) are educated to
work with children. Approximately 50% of the staff members in preschools are preschool teachers with a three year university degree, while day-care attendants, who constitute the other major staff category, have upper-secondary qualifications.

In Sweden, municipalities have the responsibility for children in need of special support with regard to their development. Some children are considered to be in need of special support based on traditional disability categories, e.g. a diagnosis or a medical condition. Other children are not formally identified to have disabilities or medical conditions, but have difficulties participating in daily preschool activities, therefore are perceived to be in need of special support based on a functional perspective (Lillvist, Sanberg, Björck-Åkesson & Granlund, 2009). According to a prevalence study of children in need of special support based on 571 preschools, the majority of children in need of special support are undiagnosed children with difficulties functioning in the preschool context (Lillvist & Granlund, 2009).

Since the 1970s, preschools have emphasized the importance of providing special support to children in need. Above all, interaction with other children and stimulation that children receive through staying in preschool is important. In the curriculum for preschools, Lpfö (National Agency for Education, 2006), the individual child’s well-being, safety, development and learning in addition to cooperation between the preschool and home is emphasized. Further, the social and physical environment should be adjusted to the child’s needs, and the preschools should provide necessary adjustments to meet the need of every child. Care and education (educare) is often stated as the general goal of early intervention. Educare is highly incorporated into the Swedish preschool system, but in order to understand how the goal of educare corresponds with the special needs of individual children, it is necessary to investigate how preschool staff perceive the support provided to children in need of special support.

**Educational support to children in need of special support - what do we know?**

The educational support to young children with disabilities and undiagnosed varies internationally. In the United States, children in need of support are enrolled in specific preschool programs targeting the special needs of disadvantaged children or children with a specific diagnosis. One example of this is ‘Head Start’, which is a state-funded preschool program enrolling children from families with low SES. Programs and methods used in U.S. preschools were mapped out in a literature review by Gilliam and Ziegler (2000). They concluded that research about assistance methods in preschool for children requiring special support is an area not extensively researched, and they argue that the state-funded preschool programs are seldom evaluated and that, “considerably more needs to be known about the effectiveness of state-funded preschool programs” (Gilliam & Ziegler, 2000, p. 465). Another literature review of the impact of out-of-home integrated care and education settings on children 0-6 years of age, showed that more work is needed on clarifying the concept of inclusion in educational programs for young children, as it now serves as an umbrella term encompassing many different meanings (Penn, Butterworth, Lloyd, Moyles, Potter & Sayeed, 2004). Similarly, Lieber et al (1998) demonstrated that although teachers in their sample provided a homogenous
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definition of inclusion, their implication of the concept to the everyday activities in the preschool varied greatly. They concluded that the beliefs and practices of teachers are important to investigate, as they bear consequences for the outcomes of individual children. A study by Gessler, Werts et al (1996) proposes that teacher’s perceptions of their need for support and resources are related to their ratings of the severity of their students’ disabilities. Teachers who perceived the students’ disabilities as severe or who perceived the students as more involved viewed the availability of support and resources as lower than the required level. By discussing the concept of educational support and other important notions regarding intervention and education for young children in need of special support; methods and programs facilitating integration can be developed and evaluated.

Educational support - general and specific interventions

The educational support provided to children in need of special support consists of general and specific methods. The general interventions are provided to all children in the preschool and constitute the overall quality, norms, values and practices based on the program or curriculum for the preschool. The specific interventions are tailored to meet the specific needs of individual children and are often based on child’s eligibility to receive additional resources. The criteria for eligibility for receiving additional resources are generally based on traditional disability categories, although they give little information about how the child functions in the preschool (Neisworth & Bagnato, 2004; Simeonsson, 2006).

Taggart et al (2006) have suggested that high quality preschools can serve as an effective intervention for reducing special educational needs, and are especially beneficial for disadvantaged children. Björck-Åkesson and Granlund (2000) argue that although general intervention (such as preschool enrolment) likely reduce the number of children at risk in general, they might not help an individual child in a specific context. The educational support to young children in need of special support in Sweden is generally carried out in the child’s natural environment, for example the home or preschool. However, the two types of support and how they are organized and viewed by preschool teachers has not been well researched. Therefore, the aim of this study is to investigate, analyze and describe preschool teachers' experiences in this area, both with diagnosed children with identified conditions, and undiagnosed children perceived by teachers to be in need of special support. The specific research question is: How do preschool teachers describe their experiences regarding the general and specific educational support provided to preschool children in need of special support?

Method

Participants

For the current study, 38 preschool units out of a larger sample of 571 preschool units were contacted. The participating preschools were located both in city and rural areas within two Swedish counties. The majority of staff members who were interviewed were educated preschool teachers. All but one of the participating teachers were female. The
preschool selection criteria was that the preschool should have at least one child with identified disabilities and one undiagnosed child perceived to be in need of special support by teachers. A total of 15 boys and 5 girls (with identified disabilities) attended the preschool units, and the number of undiagnosed children was 58, consisting of 43 boys and 15 girls. Children that had been formally diagnosed were assessed by specialists in order to determine eligibility to additional resources, such as psychiatrists, speech and language pathologists or speech and language therapists. The functional difficulties for children with identified disabilities were related to social competence (9 boys, 4 girls), speech and language (2 boys, 1 girl) and mental developmental delay (4 boys). For undiagnosed children perceived by teachers to be in need of support, difficulties arose primarily in the areas of social competence (29 boys, 13 girls), speech and language (10 boys, 2 girls) and motor difficulties (4 boys).

Table 1

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<th>Information on functional difficulties of the children in the preschools</th>
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Procedure
The teachers that participated in this study were contacted by telephone and information letter was sent. One preschool teacher from each unit (n=38) participated. Information regarding the cooperation, presentation of the interviewer and the purpose of the study was described, and a time and location for interviews was reserved. The interviews were conducted in a quiet room at the preschools. All interviews began with a description of the study and of ethical rules in social science research, i.e. requirements for confidentiality, consent, information and autonomy, and highlighting that participation in the study was voluntary (Swedish Research Council, 2002).
Instruments
A questionnaire study in the project, entitled 'Early intervention for young children in preschool – general and specific support' was developed to gain a deeper understanding for the educational support provided to special needs children. A pilot study of the questionnaire at a preschool where special needs children are enrolled. Four preschool teachers discussed the questions together with one of the authors, and the interview questions were also discussed in the project group. The preschool teachers were interviewed absent: the educational work with preschool children in need of the educational support given to the children both generally and specifically; and what is unique about the support that is given. The interview questions were as follows:

a.) Tell me which support do you provide to children?
b.) Tell me what methods of support do you use?
c.) Tell me what is unique about this method for a specific child? Why?
d.) Describe what you do when you provide support? Give examples

e.) Describe how you doing it?
f.) Tell me why you do this?
g.) Tell me what is special about what you do?
h.) Tell me what goals do you have when you doing it?

These questions were the foundation for further conversations to obtain an insightful description and deeper understanding about the educational support to preschool children in need of special support. The preschool teachers were encouraged to speak without restraint about their experiences in order to get their full perspectives. In the interviews, the preschool teachers explained and exemplified their thoughts. The interviews were tape recorded and transcribed, and lasted between 45-60 minutes.

Analysis
The method in this study was inspired by a phenomenographic approach. Phenomenographic research describes variations with regards to how individuals apprehend, understand and experience different phenomena in the world around them (see for example Marton & Booth, 2000). We have assumed a second-order perspective, because this study explored preschool teachers’ experience of reality in terms of how they, as preschool teachers, view the educational support for children in need of special support. A “second-order perspective” is an investigation and description of an individual’s experience of the world from their point of view. We have analyzed the interviews in order to identify variations in the way that individuals apprehend, understand and experience the support children in need of special support receive.

The analyses were carried out using five steps. In the first step, each interview was read several times to gain an overall view and understanding for the underlying meaning. In the second step, from a central analysis, the data was reduced. This means that all meaningful quotations were extracted as support from each question in the interviews, along with the context from each quotation. Thereafter, in the third step, quotations that had general relevance to specific support and unique support were marked, and in this analysis, a large number of meaningful statements emerged. In the fourth step, the
content of the significant statements was then grouped for the total sample into meaningful categories, whereby each unit had a descriptive meaning. The fifth step was to study the similarities and differences of these meaningful units in each theme-producing category. Some categories included subcategories, which had a shared meaning on lower levels.

Validity and reliability
Within phenomenographic research, validity and reliability is the extent to which the descriptive categories correspond to the participants’ perception. It is supported by two criteria, i.e. the categories are illustrated with quotations from the interviews, and a co-examiner (i.e. one of the authors) controls the correspondence of the categories with statements in the interviews (Alexandersson, 1994; Marton, 1994). In this study, quotations are used to illustrate the results. Observe that reliability estimations are based on quotations in Swedish.

Results

In the main analysis based on the statements from all preschool teachers, two themes emerged: indirect and direct support. The theme of direct support was divided into three categories: attitudes, speech and language support and support for motor development. The theme of indirect support was divided into support by peers and support in the physical environment.

General support for all children in preschool
Preschool teachers’ descriptions of the general support provided for all children in preschool correspond with the curriculum for the preschool, Lpfö 98, (National Agency for Education, 2006). Safety, wellbeing, democracy, interplay, play, learning and development were emphasized by the preschool teachers. And the same topics are highlighted in the curriculum for the preschool as being important.

During the interviews, the preschool teachers stated that wellbeing means that all children enjoy being at preschool. The concepts of safety, happiness and calmness in preschool ensure that parents feel secure leaving their children with preschool teachers during the day. Development is important in order for children to be able to strengthen their own abilities and fulfil their needs. During the interviews, the teachers described the importance of both democracy and to influence preschool activities, which indicates that there is a desire for equality and friendship between the children, and also that preschool teachers give an appropriate amount of attention to all children. According to the preschool teachers, influence means that children both have and feel that they have influence.

The specific and unique support for children with identified disabilities and undiagnosed children
The results of the interviews showed a variation close of experiences concerning the educational support given to children in need of special support. The ground for
educational support in preschool was described as proximity to the children, safety and peace and quiet. Above all, educational support consisted of staff supporting children in need of special support in everyday preschool activities - giving them additional time when needed, being clear with instructions, listening to them and supporting them in conflicts.

“We must be very clear in communication with the children at all times. For example, we must often follow up instructions given to a child. During circle-time, we must say “now we will go and wash our hands” and “come now, we will go and wee- wee”. One must speak the whole time about what we shall do, otherwise the children don’t realize what should be done.”

However, there are different attitudes regarding how staff should work with children in need of special support when there is one resource-teacher for the child. Staff members either share the responsibility for the children, because the children are so demanding, or implement a resource staff who is always with the child. During the interviews, preschool teachers expressed that often the child is “pulled away” from the situation and educated individually. It is common that children in need of special support are only occasionally together with the other children and staff in preschool during the day. However, both children and staff receive educational support from external professionals, for example from special education teachers through supervision. Staff described that their work then became more well-considered, and that they considered it functional better for the child.

Teachers stated that educational support can also mean that speech therapists or physiotherapists introduce them to intervention programs for individual children in need of special support. During the interviews, teachers mentioned that there are other co-workers from whom children and staff receive educational support, for example speech therapists and child psychologists from child welfare centres and social services.

Theme and Categories of Educational Support
The preschool teachers apprehend educational support in two different ways. Staffs believe that they don’t do anything unique for children in need of special support, versus the view that children in need of special support need and get more from the staff through direct and indirect support. The first perspective emphasizes the point of view that children in need of special support do not receive specific educational support beyond that which the other children in preschool receive, or that the staff members are not aware of or assertive in their educational attitude.

“I don’t know if it's something unique, I think what we do is sufficient at most times... or I don't know. Usually I work like that. One doesn’t think too deeply about what one does. One thinks so little about what done does.”

In the second perspective, the preschool teachers point out that specific educational support has two predominant themes - indirect and direct support - and that this support can be given directly to the individual child in need of special support, or several children in need of special support in a group. Direct support refers to the educational
support that is given directly to the child, and indirect support refers to educational support that is provided through more general methods.

Direct support
In the preschool teachers’ statements, the theme 'direct support' is expressed as the staff attitudes, and the speech and language support and support for motor development that children in need of special support receive.

Attitudes
In this category, there is emphasis on the staff members’ attitudes towards children in need of special support. It concerns how staff members treat children in need of special support with respect to positive comments and feedback. However, the preschool teachers express that it is difficult to maintain a positive response. A quotation that illustrates this is:

“It's a balancing act the whole time. It's like going through a minefield, one must watch each step. One must learn how to handle such children.”

Effort
In this category, the teachers expressed that effort is an important educational support mechanism. In educational support, it is shown that staff should work with a positive, conscious effort, meaning that they should not focus on overly negative responses without highlighting the positive in communication with children in need of special support. It is important to give praise when the child does something positive, because encouragement and praise confirms the child’s self-esteem.

“One tries to get them to understand that they are special and that they have accomplished a task. You want to show the child that has done something positive, not that the adult has done it for them: 'Did you see what you did, and how happy you made him?' This positive reinforcement shows that we are aware about what they have done. Then they can hear 'I can, I can'.”

Here we can see that the preschool teacher describe how they give positive feed-back to children in need of special support, and how they focus on this in their attitude towards the child. They reaffirm the child’s positive characteristics and do not focus on the negative characteristics.

“It's important that one act consistently; when she's angry we lift her away, fast. Although she maybe think one is both stupid and mean, we must ignore it. I often say 'stop, now I am angry at you, but I like you'. That confirms that one likes her and says, 'I think it was silly what you did. But I like you all the same', and when she exhibits good behaviour she gets additional credit.”

The preschool teachers seem to be both determined and aware of personal integrity, but they also give additional praise and display appreciation. The preschool teachers want children in need of special support to have friends - the praise these children receive is often in the presence of other children. Furthermore, preschool teachers give them easier instructions to carry out, for example when fetching items, the teachers try to set
children in need of special support in focus without the child feeling bad. The staff member’s positive attitudes and effort affects the child in a positive manner.

Based on the preschool teachers’ statements, it is identified that eye contact is important, and that extra eye contact should be given when parents leave their child at preschool. The preschool teachers experience indicates that eye contact is also important in order to develop the child’s social competence.

Children receive additional attention - partly because the child is need of special support, and partly because they require more attention. The staff also give more attention in order to show the other children in the preschool group that these children belong to the group.

“If all the children want to come up in my arms and give hugs, they want to be seen and want to be close. They get it, but the children in need of special support get a little more.

In: In which way?
IP: Maybe they are the ones that are lifted up first.
In: Why do you do it?
IP: Because they need a little more, in order to show the other children that children in need of special support also exist. When we prepare a meal, fetch something or go walking, we make sure that that all children hold hands. We have a plan for meals, which states who you shall sit beside, as all children take turns to sit together with me. But the children that need additional attention maybe sit two out of three times beside me.”

This shows that preschool teachers claim that children in need of special support get more of the staff’s time. The child both gets and takes more time in all that they do, which means that they automatically gain more contact with adults. This additional attention is also directed at the parents and the children in need of special support when leaving and picking up the child from preschool.

Man-to-man marking
In educational support, the use of man-to-man marking of children in need of special support is necessary in order to prevent difficulties and in order to support the child in everyday preschool activities. Staff members prepare the child for new situations as they approach, in order to eliminate conflicts. Staff members also use this marking approach with the child during free play so that the child learns how to play in an appropriate manner.

Support in transition
The transition between different situations is critical. The educational support is provides in transition between different activities. The preschool teachers expressed that there are often conflicts regarding dressing for outdoor play, and that children in need of special support have difficulties with transition from outdoor play to coming inside for lunch.
“We always guide the child through change activities; sometimes it is when we go inside. This way they can manage themselves, their clothes, and wash themselves. With guiding this occurs very calmly.”

Furthermore, staff members help the children in need of special support that cannot use the appropriate play codes, to get into play. The staff members initiate play, then the other children come and in this way the child in need of special support is included in the play activities. In free-play, the staff members are together with the children that are troublesome and read or play games (or similar). Thereafter they become calm.

**Speech and language support**
Children in need of special support receive other educational support when it comes to speech and language. Staff and the other children talk more with hands, expression and show the child correct, incorrect and instructional behaviour. Children have also been divided into different circle time groups according to speech and language needs.

“We have a little group where we have children with linguistic needs, where we read simpler fairy-tales. We explain more, and it is a little more basic.”

Furthermore, the teachers work with sign language and helping gestures, and are also supportive in language. A preschool describes how the preschool teacher tries to 'use his language' and explain for the benefit of the other children. But their experience indicates that it can occasionally be difficult to understand how he or she thinks.

**Support for motor development**
Children in need of special support receive support for motor development through gymnastics. Children that have poor body understanding get support through additional gymnastics and movement. In some preschools, the staff have special programs developed by physiotherapists for work with children in need of special support.

**Indirect support**
This theme focuses on indirect support and details both the child support and support in the physical environment categories.

**Support by peer**
According to the preschool teachers, other children are 'supporters' for children in need of special support. The educational support means that teachers bring additional children into different activities. This can mean that the children and the child in need of special support play alone and undisturbed in a playroom, or that the staff and the 'supporter' do something by themselves along with the child in need of special support (for example, playing a game). A preschool teacher described how a child becomes quiet while passing out fruit together with another child. The other children in the preschool always go by themselves and divide out fruit. This also shows on an educational support level that the children support each other. The preschool teacher felt that all children think this is fun.
Furthermore, this means that in some preschools, the staff members have learned that the older children in the group will support the child in need of special support. In this way, the children can show substitute teachers how and what should be done in the special programme. An additional aspect in children supporting each other is that when a child sits next to the opposite sex in the circle, they become quiet. In this way, the other children assume the role of a mediator.

Support in the physical environment
In this category, preschool teachers described that children in need of special support often receive their motor training outdoors, whereby the child goes out and is active. Furthermore, the forest serves as an important place for training. They play a lot and have gymnastics in the forest. The preschool teachers describe that the forest is a valuable form of educational support because children have freedom and space. There are fewer requirements, nothing is predetermined and there are no limitations.

Training for children in need of special support also happens indoors through swimming with staff and occasionally other children from preschool. The staff members also ride with children in needs of special. There is an understanding regarding how staff place children in need of special support. The child can sit near the staff member or on their lap, in order to encourage a calm situation. These children usually have certain places to be both at circle time and during meals. The children can distance themselves from the other children at meals, both through an eyeshade and by sitting in a secluded room with fewer children. This allows for peace and quiet, as well as closer contact for conversation and discussions.

Exclusions from the child group
In this category it is emphasized that the child is separated from the child group. For example, the child has to sit at the computer in order to work together with the preschool staff, or to work with materials from the speech therapist (for example). In the interviews, the preschool teachers expressed that problems occur primarily at mealtimes, which means that the children are excluded from the other child group. At one preschool, a child with identified disabilities had to eat breakfast earlier because she needed quiet. However, the purpose is that all children have the same opportunities to do the same things. If this fails, then the children in need of special support will be taken away from the child group at mealtimes, the circle time, and during rest time and structured activities. The child is guided to a calm activity, for example drawing or a puzzle. At time for rest and fairy-tales, educational support for children in need of special support is individualized when they are alone with an adult, or have to go into a separate room with a staff member to read.
Discussion

How do preschool teachers describe their experiences about educational support offered to children in need of special support?

Previously, the typical approach has been to view children in need of special support and their limitations independently of factors from the environment (European Agency for Development in Special Needs Education, 2006). However, today, National Agency for Education (2004) expresses that it is the preschools’ activities and educational work that shall be evaluated, and not the individual child and their achievements. This means that a focus on the environment in preschool can create problems. The National Agency for Education (2004) notes that the preschool shall adjust to each child’s needs. In this study, we can see that there are variations of support to children in need of special support, and that the staff members have a significant consciousness about how they shall work in order to support the children.

In a study of Sandberg, Lillvist, Eriksson, Björck-Åkesson and Granlund, (accepted) two general perspectives for definitions of children in need of special support were discerned. 70% of the preschool staff gave definitions that focused on the child, while 30% gave definitions that were focused from an organizational perspective. The results indicated that if the proportion of children in need of special support is larger, then staff must involve children in need of special support in the main preschool activities to a larger extent than if just one or two children in the preschool units had special needs. If few children in the preschool units are in need of special support, special effort is arranged outside of ordinary routines. If a preschool has many children in need of special support, the children are more involved in developing stimulated 'activity settings' than the children that have special effort for just one child in need of special support. These results support the findings in this interview study showing that preschool teachers describe both that the children became involved but also received special attention.

Nutbrown & Clough (2004) claim that early education is best when it contains inclusive education, and points out that it possibly depends on the individual’s needs, 'development of appropriate practice' and parents’ participation. This study also shows this, as the preschool teachers emphasize attitude and that children need a great deal of support and positive responses from adults. The preschool teachers also explained that they have instinctive feelings. The educational support is also about participation, i.e. the feelings that can be seen and that the children need and get more attention from the staff in order to actively participate in everyday preschool life. A quotation that illustrates this is ‘…the others get it also but those who need more get more’. The preschool teachers point out collaboration between the staff and parents as especially important for children in need of support.

Nutbrown & Clough (2004) argue that teachers’ professional development is a key factor for successful inclusion. In this study, the preschool teachers describe that supervision are important for them in their work. It's a challenge for municipalities to
create opportunities for staff to develop in their work. Supervision and continuous in-service education are important in order to secure the quality levels in preschool. In-service education is significant in several aspects, partly in order to participate in research but also to get reflections over attitudes present in this educational work (Sandberg, Anstett & Wahlgren, 2007).

Results from this study have implications for both praxis and theory both in Sweden and in other countries, as the study increases the knowledge and understanding of educational support that children in need of special support are offered in preschool today, which has importance for educational intervention in preschool.

The data collection in this study is based on semi-structured interviews. A benefit of this approach is to highlight the preschool teacher’s thoughts and reflections regarding children in need of special support. One limitation of this approach is that the preschool teacher’s variations of perceptions are collected and categorized in themes. When statements are categorized into themes, loss of data and variation will always occur. Therefore it’s not possible to find out how many preschool teachers have a specific perception. Pedhazur and Pedhazur-Schmelkin (1991) argued that it is important that the interviewer is competent and takes into consideration that the feedback in the interview is not biased in the response process in the interview.
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Intensive Daytime Toilet Training of Two Children with Autism: Implementing and Monitoring Systematically Guarantees Success!*

Abstract

Teaching toileting skills are among the most essential educational objectives for children with autism; however, there are few investigations of the utility of various toilet training approaches for this population of children. The intensive toilet training program presented in this report used the scientifically supported principles of applied behavior analysis (ABA) to teach two 5- and 3-year old boys with autism to stay accident free between scheduled toilet visits. The program consisted of pre-training, intensive training, and post-training activities. The children attained day-time toileting skills rapidly and consistently throughout the program. The procedures followed during these activities and the outcomes regarding each participant are presented in the report.

Keywords: Intensive toilet training, daytime toilet training, children with autism, toileting problems.

Introduction

Independent toileting is a critical quality of life skill because it facilitates community life and improves a sense of self-confidence (Cicero & Pfadt, 2002). The acquisition of toileting skills is delayed in children with developmental disabilities (DD), including

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*The authors would like to thank the participants and their parents for their cooperation and patience during the conduct of the study. The authors would also like to extend their appreciation to Özlem Dalgın and Tayibe Badır for their assistance in data collection.
autism spectrum disorders (ASD) and incontinence is more problematic because of diminished personal hygiene, physical discomfort, stigmatism, reduced self confidence and restriction from community activities (Cicero & Pfadt, 2002; Keen, Brannigan & Cuskelly, 2007; Kroeger & Sorensen-Burnworth, 2009; Luiselli, 1998). Therefore, toileting skills are among the most desired self care skills to teach children with DD. However, it usually is a very challenging experience to teach these skills for many teachers and parents.

A number of toilet training protocols have been implemented successfully to teach continence in individuals with DD (Kroeger & Sorensen-Burnworth, 2009). Many of these (Cicero & Pfadt, 2002; Keen et al., 2007; Kroeger & Sorensen-Burnworth, 2009; LeBlanc, Carr, Crossett, Bennett & Detweiler, 2005) have been derived from the intensive toilet training package developed by Azrin and Foxx (1971, 1974). However, further investigations are needed to examine the effects of such toilet treatment packages for children with ASD in order to better solve toileting problems (LeBlanc et al., 2005).

In the present study we adapted Lovaas (2003) daytime toilet training program which is based on the Azrin and Foxx (1971, 1974) toilet training protocol. This program teaches children to stay accident free between scheduled toilet visits by utilizing the scientifically supported principles of applied behavior analysis (ABA). The toilet training program of Lovaas consists of a minimum of 10 h of training in one day delivered via scheduled toileting format. The primary ABA principles utilized during training are positive reinforcement and overcorrection. Once the child learns to control his bladder, self-initiation is taught in the program as well.

Our protocol included two days of intensive training rather than one day. Furthermore, we implemented and monitored the pre-training activities systematically in order to gain insights regarding the intensive training days. The purpose of the current report is to present the pilot implementation process and outcomes regarding the above-mentioned toilet training program which consisted of pre-training, intensive training, and post-training activities with two children with autism.

Method

Participants

Two children were selected as participants according to two pre-requisites: receiving intensive behavioral intervention for at least six months and progressing on basic imitation, matching, and receptive language skills in the intervention program. Pseudonyms are used for the participants throughout the article. Berker and Omer were five year- and three-year-old boys with autism respectively. Berker received intensive early intervention at a university center while Omer received similar services at home in Turkey. Berker received instruction for four hours during week days on basic imitation, matching and sorting, receptive language, and Picture Exchange Communication System (PECS) programs when the toilet training was initiated. Berker had very limited communication skills and frequent oral-motor stereotypic behaviors. Omer received instruction for four hours during week days on basic imitation, matching, receptive
language, play, and incidental teaching when toilet training was initiated. He had limited expressive language skills.

Settings and Materials
The participants’ teachers and mothers implemented the pre- and post-training activities collaboratively at both school and home for Berker but only at home for Omer. However, intensive training activities were conducted at each child’s home by the teachers.

The following materials were needed for each participant for the study: a musical potty chair which played a flushing sound when the child wet the bowl and played a tune when the child stood up after using the toilet, a stool, pants, a timer, and forms to record toileting events. We offered a variety of favorite toys and activities, candies, and chocolate as reinforcers during intervention and salty snacks, sweets, water, watermelon, juice, and soda to encourage urination during intensive toilet training. We also developed three forms to record the performances of children before and during toilet training: Pre-Training Form (Figure 1), Intensive Training Form 1 (Figure 2), and Intensive Training Form 2 (Figure 3).

**Figure 1.** Pre-Training Form used before the intensive training

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Diaper was clean</th>
<th>Urinated into the toilet</th>
<th>Defecated into the toilet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
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</tbody>
</table>
Figure 2. Intensive Training Form 1 which was used during Phase 1*

<table>
<thead>
<tr>
<th>Sitting on the Toilet</th>
<th>Urinating/Defecating</th>
<th>Recessing</th>
<th>Accident Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 min.</td>
<td>Y N</td>
<td>5 min.</td>
<td>Y N</td>
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<td>5 min.</td>
<td>Y N</td>
<td>15 min.</td>
<td>Y N</td>
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</tbody>
</table>

*When the child receives 'Y' in both columns three times consecutively or receives 'Y' in the second column six times consecutively, the next step is initiated.
**Figure 3. Intensive Training Form 2 which was used during Phase 2**

<table>
<thead>
<tr>
<th>Sitting on the Toilet</th>
<th>Urinating/Defecating</th>
<th>Recessing</th>
<th>Accident Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min.</td>
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<td>3 min.</td>
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<td>30 min.</td>
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<td>3 min.</td>
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<tr>
<td>3 min.</td>
<td>Y N</td>
<td>30 min.</td>
<td>Y N</td>
</tr>
</tbody>
</table>

*When the child receives ‘Y’ in both columns three times consecutively or receives ‘Y’ in the second column six times consecutively, the next step is initiated.
During the pre-training phase an adult took the child to the toilet once every hour saying ‘Let’s potty’ and prompting Berker to touch his tummy whereas prompting Omer to say “Potty”. Afterwards, the teacher removed the child’s diaper and had him sit on the toilet for 3-5 min. While he was sitting on the toilet, she sang, played or engaged in other enjoyable activities to reinforce the child for sitting. If he urinated/defecated while sitting on the toilet, she provided positive reinforcement by delivering social and other kinds of reinforcers; if he did not, she had him get up saying ‘OK, we can get up now’ and put him in diaper. During the last two days of the pre-training phase the teacher took the child to the toilet once every half hour. She recorded the child’s toileting performance on the Pre-Training Form (Figure 1) after each trial in order to monitor toileting patterns. During the hourly scheduled visits, the average number of visits per day was 15.5 and 11.1 for Berker and Omer respectively. These pre-training data provided information on how to adapt the Lovaas (2003) criterion on the durations of sitting on the toilet and the breaks between toilet sittings during intensive toilet training as described below.

Following the pre-training activities, we conducted an intensive toilet training that consisted of two phases. Intensive training occurred over one entire weekend and was implemented in the child’s house by his teachers. Two teachers took turns about every three hours.

Phase 1 began when the child awoke in the morning on Saturday. He was taken to the toilet, his diaper was removed, and he was instructed to sit on the potty chair. We planned to have him sit on the toilet for 30 minutes or until he urinated/defecated by offering him food (e.g., salty snacks and sweets) and beverages (e.g., juice and soda) as well as enjoyable materials (e.g., laptop and puzzles) and activities (e.g., singing and playing finger games) while sitting. He was provided a 5-minute break when he urinated/defecated or when the 30-minute time period ended. He was free to move around the bathroom during the break. If he earned the break by urinating/defecating into the toilet, he was provided with social and other reinforcers. We kept his bottom undressed while he was at break and we did not let him leave the bathroom.

We gradually decreased the duration of sitting on the toilet and increased the duration of breaks as follows:

<table>
<thead>
<tr>
<th>Sitting on the toilet</th>
<th>Breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 min.</td>
<td>5 min.</td>
</tr>
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<td>25 min.</td>
<td>7 min.</td>
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<td>20 min.</td>
<td>10 min.</td>
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<tr>
<td>15 min.</td>
<td>12 min.</td>
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<tr>
<td>10 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>5 min.</td>
<td>15 min.</td>
</tr>
</tbody>
</table>

The criterion for moving from one step to another was urinating/defecating into the toilet and staying accident free during breaks three times consecutively or staying dry during breaks six times consecutively. The latter was modified from Lovaas’ criterion which required the child to stay accident free during breaks three times consecutively before
moving to the next step. This modification was based on the rather infrequent urination patterns observed during pre-training for both children.

Even one drop of urination was recorded positively during intensive training. We recorded the child’s performance during each trial on the Intensive Training Form 1 (Figure 2). Berker completed Phase 1 and started Phase 2 at noon in the second day of intensive training whereas Omer did so during the evening of the second day.

In Phase 2, the child wore underwear and was allowed to leave the bathroom during breaks. Phase 2 had the following six steps:

<table>
<thead>
<tr>
<th>Sitting on the toilet</th>
<th>Breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min.</td>
<td>15 min.</td>
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<tr>
<td>5 min.</td>
<td>20 min.</td>
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<td>4 min.</td>
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<td>4 min.</td>
<td>25 min.</td>
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<tr>
<td>3 min.</td>
<td>25 min.</td>
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<tr>
<td>3 min.</td>
<td>30 min.</td>
</tr>
</tbody>
</table>

The criterion and behavioral procedures used in Phase 1 were followed in Phase 2 as well. When the child had an accident during Phase 2, the teacher applied a simple correction procedure (Cooper, Heron & Heward, 2007) when possible. For example, Berker wiped the floor for a short while. Berker did not refuse to do the correction although he looked as if he did not enjoy doing it. When Omer had an accident during Phase 2, the teacher said “no” but did not have him wipe the floor because Omer appeared to enjoy this activity.

Results

The child’s performance during each trial on Phase 2 was recorded on the Intensive Training Form 2 (Figure 3). Berker was at the fifth step of Phase 2 (sitting on the toilet for 3 min. and having a break for 25 min.) at the end of the two-day intensive toilet training. During Phase 1 he sat on the toilet 46 times, he urinated/defecated 20 times, and had five accidents; during Phase 2 he sat on the toilet 29 times, urinated/defecated 22 times, and had eight accidents. The day after intensive training, Berker attended school and his daily routine continued as always except going to the toilet once in every 25 min. His mother was advised to follow the same schedule when the child got home. The teachers decided whether or not he met the criterion to get to the next step by considering his toileting performance both at school and at home collaborating with the mother. Berker was able to complete Phase 2 on the fifth day following the intensive training weekend.

Omer was at the second step of Phase 2 (sitting on the toilet for 5 min. and having recess for 20 min.) at the end of the two-day intensive toilet training. During Phase 1 he sat on the toilet 36 times, he urinated/defecated five times, and he had one accident; during Phase 2 he sat on the toilet 27 times, urinated/defecated two times, and had two accidents. The teachers remained in his home until he slept at night. The teachers, in

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collaboration with Omer’s mother, decided whether or not he met the criterion to get to the next step by considering his toileting performance at home. He was able to complete Phase 2 on the second day following the intensive training weekend. Towards the end of the first week following Phase 2, Omer started to occasionally initiate to use the toilet by saying “potty”.

During the post-training period, Berker’s toileting performance was monitored at school and at home whereas Omer’s toileting performance was monitored at home because he was receiving home intervention. The teachers gradually increased the duration of recesses by 5 min. in every three to four days. The criterion for increasing the duration between toilet visits was having no more than one accident for two consecutive days. In fact, Berker usually did not have more than two accidents per day and Omer did not have more than two accidents per week during the post-training period. Berker and Omer were visiting the toilet once in 45 min. and 40 min. respectively when summer break started.

One of Omer’s teachers and Berker’s mother monitored the children’s toileting performances closely during the summer break. The teacher could not record Omer’s visits to the toilet properly during summer break because they spent most of their time at the pool. Based on Omer’s performance in general, the teacher increased the duration between the toilet visits once per two days. Omer was visiting the toilet once in 60 min. when he came back to school. According to his mother’s records, Berker was taken to the toilet a mean of 18.5 times per day and urinated/defecated during about one third of these visits. He had only five accidents during the entire summer break. However, his mother adopted a more conservative criterion and increased the duration between the toilet visits when Berker had four to five accident free days consecutively. Hence, Berker was visiting the toilet once in 55 min. when he came back to school after the summer break. Towards the end of the first week following the summer break, he started to occasionally initiate to use the toilet by touching his tummy.

Conclusion

The intensive daytime toilet training program described in this article was successful for two children with autism. The teachers and the mothers of the participants were very pleased to observe the children attaining toileting skills rapidly and consistently throughout the program. The authors believe that implementing the program systematically as well as monitoring the children’s performances closely by keeping records was instrumental in the success of the implementations. Furthermore, the mothers’ willingness to collaborate with the teachers might have contributed to the success of the program.

Some advantages as well as disadvantages of the current toilet training program are worthy of discussion. The primary advantage is that the program worked successfully for both children without major problems. On the other hand, the intensive toilet training activities were rather stressful for children, parents, and teachers. However, we believe that implementing the intensive training in two days rather than in one day,
implementing it at home, and implementing it by taking turns made this stressful event easier for all of them. The toilet training program outlined herein can be utilized by teachers and parents collaboratively to teach daytime toileting skills to children with ASD and other types of DD. Similar programs can be initiated and examined for nighttime bladder control and self-initiated toileting skills as well. However, such programs should be examined via experimental research efforts to reach efficacy and efficiency outcomes.
Daytime toilet training of children with autism

References


Early Childhood Intervention in Austria: An Overview of 30 Years of Development and Future Challenges

Manfred Pretis 1

Abstract

The situation of early childhood intervention in Austria is described from its beginning in the 1970s up to the present situation and future challenges. Children with disability or at risk of being disabled qualify for early childhood intervention as well as partly and to some extent also children in the context of socially disadvantaged families. Based on nine provincial laws, the structure of early childhood intervention in Austria is heterogeneous. A consensus regarding key terms, the age of the child (0 – 3 or 6), and home-based services exists. Future challenges focus on early identification of vulnerable target groups by increased communication with community based networks (social worker, mental health specialists) as the number of children with unspecified developmental delays or vulnerability will increase. The training programmes for early intervention professionals, as proposed for example in the project PRECIOUS (www.precious.at), must include the need for professionals to work with vulnerable families in general to a greater extent.

Keywords: Early Childhood Intervention; systems development, Austria

Historical background

Based on earlier attempts to promote the development in quality of life for visually impaired children and children with hearing impairments, first ideas towards a systematic support for children with disability started in the mid 1970s (Pretis, 1998). Strong input for these initiatives came from Germany, where in 1973 the “Deutsche Bildungsrat” (Bildungsrat, 1976) suggested to implement systems of early detection and early support for children with disabilities.

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In addition to a notable sensitivity towards educational questions, the economic situation was also favourable towards the implementation of new systems of support for children at risk or with disabilities. During this period in Austria the first services to support families with a disabled child arose, based primarily on private initiatives. Childhood intervention in this context was mainly understood as a pedagogical support for the child and the families in order to prevent further disability and empower parents in their natural environment. Conceptually, early childhood intervention was based on three columns:

(a) Child centred work related to developmental stimulation
(b) family centred work such as counselling and  
(c) interdisciplinary work within local networks (Pretis, 2000).

Services were mainly home-based and families generally received one visit per week for the duration of one and a half hours. These first professionals largely had a pedagogical background such as special teacher or kindergarten teacher education. It quickly became clear that the professionals’ training did not always meet the needs of the family, especially regarding new concepts of partnership models (Pretis, 1998b) which arose out of critique of a “Letter of a mother” (Holthaus, 1983). If professionals understand themselves as partners in the family, their way of working had to be much more oriented towards the needs of the parents and not merely based on the technical skills to foster the development of the child.

Positioned in a favourable (political) climate the first training courses were established at the beginning of the 1990s, mainly based on continuous education as the professionals at the same time were working directly with and in families.

The number of attending children in this period increased enormously: from 250 attending children in 1990 to more than 1000 children in 2000 in Styria (Pretis, 1998, 2000). However, it was evident that not all children in need of services could be reached by the existing structures. Therefore, in the beginning of the 1990s, some provinces in Austria extended the qualification for early childhood intervention to children at risk and children with a background of social disadvantage.

From the legislative point of view, the two bodies of laws present the basis for early childhood intervention in Austria:

a) the law for persons with disabilities or at risk of being disabled and
b) the child welfare (www.soziales.steiermark.at). As Austria is a federal country (comparable to Germany) and the nine provinces are individually responsible for persons with disability, we unfortunately have to deal with nine different laws.
Even though the conceptual approach towards early intervention could be considered as comparable, the qualifying procedures, as well as the administrative approaches can be quite heterogeneous in the different provinces. The law for persons with disability mainly defines disability as long-term exclusion or risk of exclusion from normalised educational pathways or social participation. The causality of this law is based on existing physical, intellectual or mental impairment.

On the other hand, while expecting the effects of early childhood interventions in the field of children with social disadvantage; in some provinces early childhood intervention is also based on the law of child welfare. This means that a child could qualify for a comparable service based on another legal system. In this system causality is reversed: the risk of the child is seen as a consequence of dysfunctional family systems.

In reality, qualifying for a service based on these two laws might not always allow such a sharp differentiation between children with disability or children with a background of social disadvantage. However, it is well known that there is a high correlation between social disadvantage and being disabled (Engels, 2004).

Besides this general system of early childhood intervention for children with disability, at risk or with a background of social disadvantage, two other specific approaches also developed: services for children with visual impairment and services for children with hearing impairment. For all these services children have to qualify. In the beginning of early childhood intervention, medical doctors tended to identify children by means of their specific expertise. A lack of homogeneity regarding qualifying criteria was observed during this period. From 2004 onwards, independent teams of psychologists,
social workers and medical doctors in some provinces in Austria have worked on developing a qualifying process. To a certain extent, these independent teams brought about a homogenisation of the intake criteria and an easier accessibility for the parents in the field of early support services (0-6 years) (Kiste, 2008).

From the late 1990s it can be reasoned that most of the nine provinces of Austria were covered by a decentralized early intervention network. This structure is mainly based on NGOs in local district centres, providing the service to parents and their children in need. As soon as a child qualifies for a service, be it due to the law for persons with disability or the law of child welfare, parents are entitled to obtain the specific home-based service and the service provider is directly paid by the local authority. There might be some heterogeneity observable in Austria regarding this system (in some provinces is paid a lump sum to the service providers to deliver the service) but early qualifying and balancing aspects are connected with local administrative procedures.

This implemented structure applies to services in around 90 early childhood intervention centres in Austria, at the moment caring for around 4500 children, both with established disabilities or with a background of social disadvantage (Pretis, 2000b). It means that in the best case 2,6% of children per birth year obtain this service in a defined region. Compared to other European regions (e.g. Belgium or Bavaria in Germany) this number can be considered as slightly below the average (Pretis, 2001).

The group of children with a background of social disadvantage is constantly growing, and in some provinces the ratio of children with disadvantaged backgrounds and disabled children is 50/50. Centres – based on the federal laws - still tend to support primarily children with an established disability. In most provinces the service itself is free of charge for parents. Heterogeneity exists, as mentioned above, due to nine different provincial laws. It can be supposed that the majority of children with an established disability are covered by these local early childhood intervention services. In the field of children with social disadvantage around 50% of children are currently able to attend these specific services (Pretis, 1998)

Based on the implementation of specific professional training programmes, a particular professional identity started to appear. This can be seen as a unique development, as the professional field of early intervention is based on quite homogeneous and specific training. Apart from Switzerland and some attempts in Germany, Spain and Portugal, a specific new professional identity in the field of early childhood intervention is observed in no other country (Pretis, 2006). In all other countries, different professional groups such as speech therapists and medical doctors work in early childhood intervention. This development in Austria also lead to a collective labour agreement (www.bags-kv.at/1003,,2.html). At the start of the new century the structure for a system of early childhood intervention (taking into account all kinds of heterogeneity in Austria) can be considered well established (European Agency, 2005).
The present situation

Based on data from 2000 (Pretis, 2000b) children with a disability generally qualified for the service at the age of 26.9 months. This service is mainly recommended by clinics, paediatricians, social workers and other therapists. General practitioners, especially family doctors in Austria, still tend to follow a strategy of “wait and see”. Furthermore, even though there is a structured monitoring system of development during the first years (“Mutter-Kind-Pass-Untersuchung” in terms of a developmental screening), it can be said that the number of referrals to early childhood intervention centres by general practitioners is still not satisfactory (only 12% referrals by GPs). However, if an established disability is detected at birth, parents will be informed immediately about the possibility of home-based early childhood intervention services and/or the possibility of specific therapeutic interventions e.g. physiotherapy. As early childhood intervention is its own professional field, parents might also obtain physiotherapy, speech therapy or other related therapies.

In the case of children coming from socially disadvantaged backgrounds, the qualifying period might be slightly later as it tend to be the social workers who propose the intake of a child into a programme. Statistically, children remain in a programme for two years, along with a home visit from an early childhood interventionist once a week. Most of the children with disability or risk will attend a kindergarten between the ages of 3 and 4, and at that time home-based early childhood intervention services tend to stop and specific integration processes in the kindergarten will take place.

Professionalization
The heterogeneity of organisations and structures in this setting is quite complex. In some cases children might receive the service until they begin school (at age 6). The majority of professionals in the field have to pass a specific training which is provided by two universities and one academy in Austria. The training focuses on three columns:
- knowledge of basic medical, psychological, pedagogical, social work and therapeutic interventions
- skills development through practical internships during the training
- broader personal competencies in terms of reflection, supervision and resource management, primarily in the context of mainly home-based work. (Pretis, 2006b)

Current training represents around 90 –100 ECTS points; master degrees are seen as a future challenge (www.ebiff.org).

Working methods
Methodologically the early childhood intervention process starts with a warming up and information phase (Pretis, 2005) which is finalised by a working contract between the early childhood interventionist and the parents. Besides these content-orientated procedures an administrative procedure also has to be performed (qualifying processes).

However it can be hypothesised that the majority of children who qualify for this preventive service do qualify. After this period of warming up and observation a
hypothesis-oriented child and family-centred work based on individual needs begins. There is no existing structured programme (e.g., like portage). Professionals approach the family’s needs individually and normally work for one hour with the child and half an hour with the parents in the home-based setting.

Quality of interventions
Based on this individual approach, it is difficult to compare interventions. However, a conceptual consensus regarding the general approach to the family can be seen. On the other hand, Guralnick (2005) warns that at a conceptual level almost everyone subscribes to the general principles associated with ECI (e.g., empowerment, child- and family-centred activities, inclusion, etc.). On the other hand, concrete policies and practices are highly fragmented.

In most provinces obligatory training tries to homogenise this diversity. However, as the whole system is much decentralised and the service is provided by diverse NGOs, data collection, also in terms of measuring prevention, is very difficult. Early childhood intervention is organised on a provincial level, and no national research initiative takes place. Local evaluations, however, show high parental satisfaction with the service, especially in the field of children with established disabilities. Preventive effects of these early services are therefore difficult to measure. Although it can be hypothesised that one in eight children attending early childhood intervention services does not need therapies after this preventive effort (Pretis, 2000).

After a period of six months working in the family, the professional might undergo a self-evaluation process with the family in order to calibrate the individual plan. After one year the service is usually evaluated by the administrative authority based on reports from the professionals. An objective evaluation by a team of experts is normally not foreseen, as this service delivery is prolonged by the authority for most of the children. On the other hand it cannot be hypothesised that preventive effects are so prominent in children with an established disability that a continuation of the service is not necessary. Most preventive effects are observed in children from socially disadvantaged backgrounds. The concrete work with the child involves child-centred activities which are mainly based on the results of developmental screenings. Parent-oriented activities include information, counselling the family, aspects related to work and empowerment.

Financing
Interdisciplinary work commonly focuses on cooperation with local specialists since the NGO-based centres do not tend to employ or hire other specialists. The interdisciplinary team therefore can be considered “virtual”. Cooperation between local specialists in this context depends to a high extent on their own motivation, as interdisciplinary services are only partly remunerated. As mentioned above, early childhood intervention services are financed by two provincial laws: a. the law for persons with disability or at risk and b. the child welfare law. Even though it is difficult to compare the data among the nine provinces in Austria it can be hypothesised that the public authority invests around 450 – 500 Euro per child per month. Compared to international data this represents an average level of expenditure (Sastre i Riba, 2008).
Current initiatives

Current initiatives in Austria mainly focus on the issue of professional training. Two European projects (www.ebiff.org and www.precious.at) emphasise the future importance of master’s level professional training. Early childhood intervention is seen as one of the most complex fields integrating knowledge from diverse interdisciplinary fields, communication skills for working with the family, skills of self-reflection, supervision and self-evaluation. Therefore it is strongly recommended that professionals in the field of early childhood intervention obtain a master qualification (EQF level 6).

On the other hand the suggested 8 modules of this European Curriculum take the needs of new target groups into account: e.g. increased number of children coming from a background of social disadvantage, children with a background of migration or children with parents with mental illness (Pretis & Dimova 2004). Furthermore, evidence-based and research-oriented service delivery should increase effectiveness and efficiency. In the sense of a pedagogical approach to early childhood intervention commonly used concepts such as empowerment, holistic approach, family centeredness etc. could still be used more extensively. This could lead to the risk of contrary intervention in the family. Guralnick (2005) highlights the risk of heterogeneous daily performance of the professionals.

Besides these specific initiatives, a general increased sensitivity towards the needs of young children can be observed: free of charge attendance at kindergarten, and early detection of language disorders at least one year before starting school. The general promotion of early development is part of the governmental programme in Austria. Closely connected to the above-mentioned initiatives regarding professional training, the questions of quality, quality control, effectiveness and efficiency become more and more important. The federal structure of the service, mainly based on local initiatives seriously inhibits comparability of approaches or data. Although local authorities are interested in the question of efficiency and effectiveness of methods to measure the impact, there is a lack of scientific resources. Initiating discussions surrounding the usage of ICF in the German area (Kraus de Camargo, 2007) might give an impulse towards the use of a “common language”.

Furthermore, although it is not politically correct to talk about savings or cuttings in the field of young disabled children, the existing economic crisis shows some impact on early childhood intervention. Some centres had to increase their case load (as most centres are paid depending on the number of attended cases) affecting some indirect activities such as public relation or supervision. Still, the average case load of around 14 – 15 children per week per professional witnessed in Austria can be regarded as an exception in the European context. In other countries the case load for professionals is significantly higher (Pretis, 2006b)
Future challenges for early childhood intervention in Austria

It can be observed that the target group of attending children is slowly changing. Due to country-wide voluntary pre-natal developmental screening it can be seen that most of the foetuses with possible developmental risks or established disabilities are aborted (Morris, 2009). This means that “classical” symptoms of disability such as children with Down’s Syndrome, spina bifida etc. are slowly disappearing. On the other hand, based on the facilities of neo-natal intensive care, the number of severely disabled children in the services has been increasing.

On the other hand it can be observed that the number of children with unspecific developmental delays or risks, children from socially disadvantaged backgrounds, children with diagnoses such as ADHD or vulnerable children in the context of parents with mental disorders is constantly increasing. At the moment it can be hypothesised that in well-established provinces up to 50% of the children in early childhood intervention programmes do not represent classical disabled children (Pretis, 2002). This means that the concepts, the methods and the concrete work with the parents of these new target groups have to be renewed. In this context there is a certain dissatisfaction with existing training courses, which are still very much focused on the label of disability. New challenges and new needs of the target groups will focus much more on the preventive work with the parents rather than mere developmental stimulation of the child. Additionally, the new target group parents, e.g. parents from socially disadvantaged backgrounds or parents with a background of psychiatric disorders might show difficulties in compliance and understanding, so the major focus has to be on how to reach these parents. Strengthening the resilience of these children through broader social networks is seen as one possible way (Pretis & Dimova, 2008). Even though the country is covered by early childhood intervention centres these new target groups up to now are not adequately reached.

In periods of restricted financial resources the issue of efficacy and efficiency will arise. Even though up to now local authorities do not have adequate tools to measure the concrete impact of early childhood intervention, and due to the diversity of laws and structures, research displays only local data, and it is only a question of time before administrative systems start to rethink this issue, including the question of quality. In this context, due to the heterogeneity of structures it is recommendable that the centres themselves start to initiate a process collecting comparable data to establish an evidence base of their work, e.g. using the framework of the ICF. Based on the paradigm of second generation research (Guralnick, 1997), intervention in the future will focus much more on individual approaches, not only regarding the contents of the service, for this is to a large extent guaranteed by the individual plans, but also in terms of organisation e.g. centre-based interventions or group interventions geared towards the social competencies of children with disabilities.
Although there are some challenges for early childhood intervention in the country, Austria itself can be considered well organised. Parents are generally open towards this service and no child is left behind.
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Spoken Language in Persons with Down Syndrome: A Life-Span Perspective

Abstract

Language development, training, and maintenance in Down syndrome are a life-long endeavour. Present-day knowledge of the typical profile of the condition with its relative points of strength and weakness can be set in a life-span perspective from the first days of life until the common propensity to earlier physical and cognitive ageing.

Keywords: Spoken language, Down syndrome, life-span.

Introduction

Language development and functioning in congenital intellectual disabilities, and particularly Down syndrome, is best understood according to a life-span developmental perspective. It must be considered as a delayed and eventually incomplete but corresponding version of standard development (Cichetti & Beeghly, 1990; Rondal & Edwards, 1997). The sequence of steps as well as the stages arrived at and the underlying mechanisms and processes are similar limited only by the brain shortcomings and the cognitive deficiencies that are the mark of the various conditions conducive to intellectual disability (Rondal & Perera, 2006).

In what follows, I review current data and theoretical positions regarding speech and language development in persons with Down syndrome from birth (and before) until the ageing years. Although the present text is not conceived as an intervention manual, it contains important implications for the conduct of cognitive interventions with these persons across the life span.

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Down Syndrome

Down syndrome (DS) or trisomy 21 corresponds to three etiological subcategories: (1) standard trisomy 21, (2) translocation, and (3) mosaicism. In 93% of the cases (standard trisomy 21), the genetic error (nondisjunction in the pair 21 at the meiotic stage) takes place in the ovula or the spermatozoid before syngamy or during the first cell division. All the living cells of the embryo receive three chromosomes 21. In 2% of the cases, the genetic error takes place during the second or the third cell division. In those cases, the embryo develops with a mosaic of cells containing the regular number of 46 chromosomes and cells with three chromosomes 21. In the remaining 5% of the cases, the additional genetic material is not a triplicate of chromosome 21 but a part or the totality of another chromosome, often chromosome 13, 14, 15, 21 itself, or 22 (cases of translocations reciprocal or not; the translocations 21/21 are labelled Robertsonian). In about 66% of the translocation cases, the genetic error takes place during the formation of the ovula or the spermatozoid, or during the first division of the embryo cell. In 34% of the cases, one of the parents, although phenotypically normal in all respects, carries the translocation (said to be equilibrated) in his genotype. In cases of a Robertsonian translocation in one of the parents, the probability to have it passed to the offspring and causing Down syndrome is 100%.

A natural question is whether karyotypic variation makes a difference in the psychological outcomes of persons with Down syndrome? The issue was first raised by Clarke et al. (1961), who described a case of mosaic trisomy in a typically developing girl presenting some features of Down syndrome. Other reports have explored the frequency of trisomic cells in relationship with IQ (intelligence quotient) level. Overall findings (Gibson, 1981) suggest that: (1) persons with Down syndrome of the mosaic subtype are less severely retarded than those with translocation or standard trisomy 21 and (2) persons with Down syndrome of the translocation subtype display less intellectual disability on the whole than persons with Down syndrome of the standard trisomy 21 subtype.

Fewer data have been published on the corresponding issue regarding language abilities. Fishler and Koch (1991) reported a mean IQ difference of 12 points between a group of 30 persons with standard trisomy 21 (mean IQ 52, standard deviation - SD - 14.6) and a group of subjects with mosaic Down syndrome (mean IQ 64, SD 13.8). The two groups were matched for chronological age (CA) - between 2 and 18 years, sex, and parental socioeconomic background. Most subjects with Down syndrome of the mosaic subtype (but none with standard trisomy 21) showed better receptive lexical abilities at the Peabody Picture Vocabulary Test.

As the most common noninherited chromosomal cause of intellectual disability, Down syndrome affects about one in 800 live births. A markedly increased risk of bearing a child with trisomy 21 exists in women advancing in age (particularly over 30 years). Benda’s classical curve of mental growth for individuals with Down syndrome (Benda, 1949) culminates around 40 months mental age (MA) reached between 10 and 15 years.
CA. Modal IQ in standard trisomy 21 is between 45 and 50 points (Gibson, 1981). The literature on psychological development sees mental evolution in persons with Down syndrome in three “stages” (Gibson, 1981). Mental growth is steady during the first 18 months MA, developed over 4 or 5 years CA. This phase witnesses the evolution of the child through Piaget’s stages of sensorimotor intellectual development. A beginning of conceptual-symbolic development is also evident. The second and third periods of mental growth take place between 5 and approximately 15 years CA. They cover a MA range from 2 to 5 years. Five or six years MA seems to be a realistic upper limit of mental growth for many (but not all) individuals with Down syndrome. However, mental development may continue well in the third decade of life for some individuals with Down syndrome, albeit at a slower rate (for example, Berry et al., 1984). Hodapp et al. (1999) have contributed a reanalysis of previous data (e.g., Carr, 1994) as well as data of their own regarding rate of intellectual development in children and adolescents with Down syndrome. They confirm a slowing of developmental rates with age (from global IQs above 70 points before 3 years CA to close to 40 beyond 15 years). It is worth noting, however, that there is no indication of actual losses of acquired skills. No clear explanation has been proposed for the decline in rate of intellectual development in adolescents and young adults with Down syndrome. It could be a precocious manifestation of the tendency to earlier ageing as documented in many of these persons beyond 35 years or so (see below).

Prelinguistic Development

Language development in typically developing children begins three months before birth. By that time, the auditory system of the fetus-baby is functional and tuned to the speech frequencies (basically 400 to 4000 cycles per second). This is a unique feature of the human ontogenesis (suggesting a strong species predisposition for speech). During the waking periods, every acoustical stimulus exceeding 60 decibels is normally received by the auditory apparatus and treated by the baby’s brain. The loss in intensity is due to the aquatic milieu surrounding the baby and the fact that the middle ear is filled with amniotic liquid. As a likely consequence of this exposure, the typically developing baby, at birth, demonstrates an ability to recognize the mother’s voice and individuate it from other voices. The discriminative ability is purely prosodic. It relies on the unique tonal and rhythmic characteristics of the mother’s voice. This can be demonstrated relying on the techniques of cognitive-behavioural investigation in neonates (Boysson-Bardies, 1996). Beyond the particular mother’s voice (and through it, to say so), typically developing neonates and young babies demonstrate an ability to recognize the maternal language (always through its prosodic characteristics). They are able to differentiate the one language that they have been exposed to in utero from other languages (Nazzi et al., 1998; 2000).

Young typically developing babies can also differentiate accentuated syllables from non-accentuated ones (Jusczyk et al., 1993). They do recognize varying sequences of syllables (Safran et al., 1996; Marcus et al., 1999). Typically developing neonates can also differentiate between functions words in English (i.e., prepositions, articles, auxiliaries, pronouns, conjunctions) and content words (verbs, nouns, adjectives,
adverbs); the former class is less accentuated and tends to be shorter in length as well as poorer in mean number of vowels (Shi et al., 1999).

Lastly, typically developing neonates have an inborn ability to discriminate between virtually all possible pairs of sounds in human speech; an ability which retrocedes in the course of the first year in correlation with a progressive specialization in the sounds (future phonemes) of the community language (Eimas, 1996). For instance, Japanese babies are able to distinguish ɾ and l sounds, whereas older Japanese children and adults no longer can, as these phonemes do not exist in Japanese. The loss of phonic sensitivity is cognitive or attentional but not neurosensorial. Research shows that only those sounds that share one or several dimensions with maternal phonemes and therefore are potential competitors for the maternal ones, are “faded away” on a statistical basis. Less frequent sounds not being primed disappear from the activated attentional/memory register. These abilities and prelanguage knowledge supply a valid point of departure for cracking the language code.

We know virtually nothing on the corresponding abilities in Infants and children with Down syndrome. This prevents figuring out when and how prelanguage development starts in these babies rendering uncertain the definition of very early intervention programmes which on several grounds (e.g., brain plasticity, efficiency) may be highly desirable. The kind of research needed to answer the above question should figure high on our agendas for there are reasons to suspect that infants with Down syndrome may not come to birth with the same beginning knowledge base as typically developing newborns regarding prosodic language properties.

Several observations suggests that babies with Down syndrome exhibit patterns of attention and habituation to speech sounds that differ from typically developing babies (for example, longer responses to complex auditory stimuli) and that they are more easily distracted from such stimuli (Pueschel & Sustrova, 1996; Tristao & Feitosa, 2002). Research with event-related brain potentials and reaction times indicate that children with Down syndrome process complex auditory information more slowly than CA- and even MA-matched typically developing children (Eilers et al., 1985).

Aberrant lateralization of auditory processing (using brainstem evoked responses) is observed in some individuals with Down syndrome (Miezejewsky et al., 1994). Reversed ear advantage for the verbal material in at least a proportion of children and adults with Down syndrome has been reported (Bowler et al., 1985; Elliott et al., 1987; Rondal, 1995). These indications add to the well known auditory deficit in at least 25% of the children with Down syndrome.

Judging from these indications, pending more specific data gathering, early prelanguage intervention may already be in order in babies with Down syndrome. It should consist in intensifying the natural verbal and vocal interaction with the baby, quantitatively (at least half an hour a day) and qualitatively (slowing down the pace of speech addressed to the baby but without altering the normal prosody except for a slightly higher pitch which plays as an attention getter). More on the vanguard side pending appropriate research, it
could prove useful to manage increasing the intensity level of the mother’s voice in the last three months of pregnancy in a plausible attempt to help the fetus attending and memorizing the prosodic parameters of maternal speech and language.

Prelinguistic development covers the first 18 months of life in typically developing infants. It may be quite extended in Down syndrome. Neurological examination reveals hypotonia and abnormalities in the early reflexes and automatism of neonates with Down syndrome (including palmar and plantar reflexes, ventral suspension, Moro response, and automatic stepping). Early motor development is delayed largely due to congenital hypotonia. Four periods can be identified in babbling development:

- Stage 1 (0-2 months in TD babies): reflex or quasi-reflex vocalizations (crying and vegetative sounds).
- Stage 2 (2-4 months): cooing sounds tied to smiles and prevocalic sounds.
- Stage 3 (4-8 months): quasi-vowels, clicks, palatalized or pharyngealized consonants, affricates, etc.
- Stage 4 (8-10 months): canonical babbling (production of well formed syllables; e.g., ba, pa, da, ta, ga, ka), often reduplicated (e.g., bababa, mamama, tatata, etc), then variegated (consisting of differing consonants and vowels). Before approximately 6 months, infants’ babbling appears to be only minimally influenced by the community language. Sounds that do not belong to maternal tongue are readily produced. Between 6 and 12 months, a clear influence of the linguistic environment can be demonstrated. In some way, the older infant babbles in her (his) mother tongue.

Babbling sounds are mostly similar in types and tokens in typically developing and infants with Down syndrome (Smith & Oller, 1981). However, there is a three-month delay on average regarding the onset of reduplicated babbling in the latter. This is all the more important as reduplicated babbling is a distinct precursor to meaningful speech. Significant positive correlations have been found between the age of onset of reduplicated babbling in infants with Down syndrome and their scores at 27 months on the early Social-Communication Scales (Mundy et al., 1984) that are predictive of subsequent development in verbal communication.

Speech Development

A majority of children with Down syndrome demonstrate slowness of articulatory development and persisting (sometimes lifelong) difficulties which may reduce the intelligibility of their speech.

The causes include:

- Peripheral anatomical factors: an oral cavity too small for the tongue affecting sound resonance, a protruding tongue, a cleft or short hard-palate, abnormal teeth disposal or deformities resulting in defective mouth occlusion, the larynx located high in the neck, an hypotonia of speech muscles involving tongue, lips, soft palate, and breathing muscles (Spitzer et al., 1961);
- Auditory defects: mainly 25 to 55 decibel losses over the frequencies 500, 1000, and 2000 Hertz; impairment being roughly half conductive and half sensorineural or mixed;
• Deficits in motor coordination and timing (Rosin et al., 1987);
• Voice problems, including hoarseness; higher or lower fundamental frequencies than normal (Montague & Hollien, 1973).

Phonological development (the setting of phonological contrasts in production and their discrimination in speech perception) is slow and difficult in many children with Down syndrome but the overall progression appears to parallel development in typically developing children (Smith & Oller, 1981; Stoel-Gammon, 1980, 1981, 2003; Menn, 1983). Vowels, semivowels, and nasal and stop consonants are produced first. The fricatives [f],[θ],[s],[ʃ], [v], [z],[ð], and [z] are more delicate to articulate. They take longer to be mastered (when they are). Intelligibility of speech remains low in many individuals with Down syndrome (Ryan, 1975; Rondal, 1978). The articulatory simplifications are of the same type, albeit more inconsistent and variable from trial to trial in the same persons and from person to person, even at comparable IQ and MA levels, as those observed in the speech of typically developing children (mainly: feature changes, cluster reductions, and assimilations; Dodd, 1976; Rosin et al., 1988; Dodd & Leahy, 1989; Van Borsel, 1993). Most adolescents and adults with Down syndrome show a pattern of phonological performance similar to that of older children with Down syndrome (Rondal & Lambert, 1983; Van Borsel, 1988).

Nonsegmental phonology (prosody, intonation, accents, pauses in speech), has been little studied in persons with Down syndrome. A few limited indications suggest that it may be slightly in advance of other linguistic skills. Contrastive intonation patterns are used to support the emerging conversational skills but with some inconsistency (Rondal & Edwards, 1997).

Within the first year, typically developing infants learn to recognise the sounds of their native language and segment the flow of speech heard into conventional units. Little is known about early speech perception abilities in infants with Down syndrome and how these relate to later language development. The bulk of the literature on phonological development in Down syndrome has concentrated on the production of phonology. It has been suggested that difficulties originate mainly in the assembly and rhythmic ordering of speech sounds which likely is an incomplete account. Eilers et al. (1985) tested perception of phonemes by CA 14-25 month old infants with Down syndrome using a behavioural technique (the head turn paradigm). Once infants with Down syndrome reached a MA level of 7 months, they demonstrate typical discriminatory orientation. However, Tristao & Feitosa (2002) in a similar experiment but with younger infants with Down syndrome (CA 3-12 months) demonstrated that not all infants with Down syndrome gave evidence of phonemic discrimination. The CAs differ in the two experiments and it is possible therefore that some of the subjects tested by Tristao and Feitosa were still in a transitory stage regarding phonemic discrimination.

Lexical Development

From comparative studies of typically developing individuals and individuals with Down syndrome, MA appears to be a valid predictor of receptive lexical level. In both
populations, early word understanding begins at the same MA and there are many similarities in the respective progressions (Cunnigham & Sloper, 1984). In children with Down syndrome, lexical development proceeds according to mental growth which follows CA with increasing delays (Rondal, 1985). The relationship between MA and expressive lexical development (not to be confounded with lexical definitions—a metalinguistic task at which persons with intellectual disabilities are little apt for obvious cognitive reasons) is more variable because additional variables come into play (prominently the problems associated with articulatory development and motor programming). Hence the dissociations observed between lexical understanding and expression in these people. The onset of expressive language is markedly delayed in Down syndrome. In some studies, cohorts of CA 4 year-olds have expressive vocabularies of 50 words on average which is about the median value of 16-18 month old typically developing infants (Smith & Stoel-Gammon, 1983).

Lexical learning is a complex task involving:

1. Segmenting the input speech flow into candidate lexical units;
2. Establishing relevant (i.e., conventional denotative) associations between forms, meaning, and categories of referents;
3. Maintaining the information in short-term memory the time needed to allow registration in longer-term stores;
4. Organizing the lexical units in semantic memory to insure permanent storage and efficient retrieval.

Let us consider these operations in more detail.

Segmenting speech
Except for the fact that globally the language input to children with Down syndrome is comparable formally and as to its contents to the one addressed to children in typical development at comparative levels of language development (Rondal & Edwards, 1997; Rondal & Docquier, 2006), virtually nothing is known on the way the former come to segmenting the input speech they are exposed to in relevant lexical units. It is known that the first lexical acquisitions of typically developing children correspond to the words most often produced by the parents when addressing the children and even more to those words produced in isolation (Otomo, 2001; Brent & Siskind, 2001). No systematic study has been conducted on the same aspects regarding infants with Down syndrome.

Constraints on lexical learning
Several strategies bearing on the acquisition of the early lexical repertoires, particularly nouns at the basic level, have been proposed for typically developing children (e.g., Mervis, 1987; Markman, 1990; Golinkoff et al., 1994; Waxman & Booth, 2001). They are instrumental in meeting the challenge created by the important number of logically plausible alternatives regarding the relationships between lexical forms and plausible referents. Some of the most important lexical strategies are:

1. **Reference (words refer to objects, persons, events in the environment)**
2. Whole object (a new name refers to a whole referent and not to one of its properties, qualities, parts, substance, etc.).

3. Mutual exclusivity (to each object corresponds a different name).

4. Taxonomy (lexical categories are constituted of similar objects and not, for example, of objects that can be associated thematically).

5. Form

6. Function

7. Contrast (each formal difference codes for a difference in meaning and/or formal class status; e.g., noun/verb).

8. Conventionality and stability (words have conventional meaning that are stable over time).

9. New name — category without a name (new words refer to categories for which one does not have a name yet).

Research reveals that the strategy “new name — category without a name” is not available at the beginning of lexical development (CA 2-3 years) in children with Down syndrome. It is also the case for typically developing infants earlier which suggest a close relationship between lexical strategies and MA. Interestingly, the children with Down syndrome who subsequently have access to this principle proceed more rapidly in lexical acquisitions (Mervis & Bertrand, 1994, 1995; Mervis & Becerra, 2003).

Short-term memory
It has been suggested that auditory-vocal short-term memory (AV-STM) plays an important role in lexical learning (Baddeley, 1980). Correlative data supporting this hypothesis have been gathered by Gathercole and Baddeley (1993) and confirmed in following works. A mechanism that may account for the relationship between AV-STM and lexical development is that the longer a new word is kept in STM, the better the odds that it will be learned, i.e., passed onto long-term memory. DS subjects typically have shorter and more unstable AV-STM (but better visuo-spatial STM; Marcell & Armstrong, 1982; Marcell & Weeks, 1988) which may account, at least partially, for the slowness and limitations of their lexical learning (MacKenzie & Hulme, 1987; Jarrold & Baddeley, 1997; Jarrold, et al., 1999). Although the exact relationship between AV-STM development and language acquisition still needs to be further specified, it is clear that increasing STM span must be part of any language and cognitive intervention program in children with Down syndrome. Particular techniques to this aim have been devised and tested successfully in recent years (see Conners, 2003, for a review).

Lexical organization in long-term memory
A fast and reliable retrieval is needed to produce and understand a linguistic utterance in real time (several words produced/a second in usual conversations). Such ability also depends on the quality of the organization in long-term memory. Although this aspect of lexical functioning is not fully explained in typically developed people, a few organizing principles and dimensions have been studied, prominently among which lexical prototypicality and the hierarchical dimensions of semantic fields.
Prototypicality (or “best category example”) means that in a number of lexical categories, one can readily identify individual referents presenting at the same time most if not all the typical characteristics of the category and few or none of the characteristics of neighbouring classes (for example, among birds, eagle, sparrows, and crows are most often considered prototypes of the general category, whereas ducks, swans, and hens are not (Rosch, 1978).

By hierarchical dimension, one means a structuration based on two types of relations, i.e., a hierarchy of subsets and a series of attributions. Consider, for instance, the three-level hierarchy composed of superordinate, basic, and subordinate levels, holding in the case of the categories: animal, dog, German shepherd (Rosch, 1978).

Studies (Barrett & Diniz, 1989, for a review) show that individuals with Down syndrome tend to represent the meaning of a number of noun categories relying on lexical prototypes. They gradually extend their lexical categories to include other items on the basis of similarity with the prototypes. The closer the new item with the prototype, the faster it can be identified as belonging to the same category (Tager-Flusberg, 1986). Individuals with Down syndrome do develop the notions of superordinate and subordinate relationships but with important delays (Barrett & Diniz, 1989). The basic level is always dominant. Items at this level are learnt, memorized, recognized, and recalled more reliably and more rapidly. The knowledge of items at nonbasic levels is less advanced and remains unstable (Tager-Flusberg, 1986).

**Grammar**

Relational or thematic semantic structures are the building blocks for grammatical development (Rondal, 2006). Children with Down syndrome are delayed in semantic development in proportion to their cognitive delay, as approached by MA measures.

**Semantic Structural Development**

When combining two and three words in the same utterance, children with Down syndrome appear to understand and express the same range of relational meanings or thematic roles and relations as reported in typical combinatorial language (Duchan & Erickson, 1976; Rondal, 1978; Coggins, 1979; Layton & Sharifi, 1979). Examples of early thematic relations are: notice or existence; denial or disappearance; recurrence, attribution (qualitative or quantitative); possession; location; agent; patient; instrument; source; agent—action; action—patient; agent—action—patient.

In spite of noticeable delays, children with Down syndrome develop the typical semantic basis for combinatorial language functioning. Further delays in grammatical development are due to particular difficulties with the morphosyntactical dimensions of the language.

**Morphosyntactic Development**

Morphosyntactic development is difficult and rarely complete in persons with Down syndrome. Progress is obvious, however, with increased CA. It is reflected in the
progressive lengthening of the utterances as indexed by mean length of utterance (MLU). MLU data in spontaneous speech (free conversation) reveal an increase in group mean values from MLU slightly beyond 1.00 around 4 years CA to close to 3.00 around 9 years, 3.50 around 11 years, and close to 6 in early adulthood. The slowness and limitation of MLU development correspond to shortcomings in basic morphosyntax. However, word order in those languages that rely on sequential devices to express basic semantic structuring is usually correct.

Phrases are the building blocks of sentences. They are formed of particular lexemes disposed around a phrase head. The major phrases in the English language are nominal, verbal, and prepositional. Noun phrases have a noun or a pronoun as syntactic head. Preceding or following the head noun, one may have one or several modifiers (articles, qualifiers, quantifiers, classifiers, deictics, or one or even entire propositions; for example, in the little house that the doggie inhabits). Verb phrases are formed by a conjugated verb, as head of phrase, followed by one or several noun phrases (Mummy cooks the meal). Prepositional phrases are composed of a preposition (head) followed by a noun phrase. Reductions in the composition of the phrases in children with Down syndrome is due to a restriction in combinatorial ability, itself attributable to limitation in short-term memory and mental working spaces, and difficulties in mastering grammatical classes (articles, prepositions, pronouns, modals, auxiliaries, copula, and conjunctions).

Morphological inflexions in verbs and auxiliaries are slow to learn and tend to remain unstable in persons with Down syndrome. These markings are concerned with number and person of the grammatical subject of the verb and the temporal (present, past, future) and aspectual dimension of the action/event related (in process, finished with no bearing on the present situation or not, imaginary or real). These forms are less salient in the speech flow and they carry less semantic weight than content words. Persons with Down syndrome have difficulties in planning and controlling the execution of multidimensional tasks such as complex language production (dealing simultaneously with communication intent, semantic content, pragmatic realities, lexical selection, morphosyntactic marking, and speech regulations). As a consequence, they regularly leave out those components judged to be less important for concentrating on more important content ones.

Sentences are formed by combining phrases sequentially. Delays in phrase development will automatically impinge on sentence formation. Basic types of monopropositional simple declarative affirmative actives sentences are as follows:
- Simple transitives (for example, The dog chases the cat);
- Simple intransitives (The dog barks);
- More complex transitive structures (The dog chases the cat in the yard);
- More complex intransitive structures (The dog barks in the yard);
- Simple attributives (The dog is big);
- Transitive or intransitive structures modified by an adverb (The man drives his car fast).
Children and adolescents with Down syndrome experiment limitations in the comprehension and even more in the production of the more advanced sentential structures. They lag behind MA-matched controls. Younger typically developing children tend to decode reversible passive sentences as actives *(The blue car is followed by the red car means The blue car follows the red car)*. The same trend is observed in children and adolescents with Down syndrome (Rondal, 1995). Actional passives (i.e., passive sentences constructed around action verbs, e.g. push, carry) as opposed to mental or experience verbs (imagine, like, see, etc.), which are facilitative for typically developing children (Rondal et al., 1990), have no such an effect in children with Down syndrome for whom formal complexity blocks the otherwise facilitating semantic effect.

**Pragmatics**

Although formally reduced, the language of individuals with Down syndrome is not devoid of communicative value. Conversational topics are dealt with to allow for the necessary continuity in the exchange between interlocutors. Language content is informative and new information is exchanged. Owings et al. (1981) illustrate the capacity of adults with moderate and severe intellectual disability (including persons with Down syndrome) to take part in conversation with other persons in dyadic or triadic contexts. In experimental settings, young adults with Down syndrome prove able to judge topic maintenance correctly. They exhibit similar types of conversational controls as typically developed adults. Abbeduto and Rosenberg (1992) and Rosenberg and Abbeduto (1993) have examined the communicative competence of moderately to mildly adults with intellectual disability, including adults with Down syndrome. Their conversational turn-taking is functional. They are able to recognize the illocutionary acts requiring a response from the interlocutor from those that do not. The exchange of information is active. Children with Down syndrome already make use of a variety of illocutionary devices in relating verbally to their mothers, as shown in the data gathered by Rondal (1978) in free-play interactions. Research by Leifer and Lewis (1984) and Scherer and Owings (1984) also demonstrate nontrivial conversational capacities in responding to verbal requests by children with Down syndrome around 5 years CA. A number of studies (Abbeduto & Keller-Bell, 2003, for a review) have found that children with Down syndrome use language to express the same speech acts and at the same relative rates as do younger typically developing children at corresponding levels of cognitive development. There are some limitations, however. Persons with intellectual disability tend to express fewer indirect speech acts (Abbeduto & Rosenberg, 1992). They formulate fewer clarification requests in comparison with typically developed MA-matched subjects (Abbeduto et al., 1991). Abilities such as understanding or guessing the interlocutor’s communication intent, requesting information, clarification, confirmation, or a specific action, establishing, maintaining and/or switching the referent of talk, evaluating self- and other-understanding of language, are related to the conceptual side of language implying a close relationship with cognitive development. This means that there will be difficulties in developing the more advanced pragmatic functions on the top of the formal limitations mentioned before. Additionally, there may be some shortcomings in “reading” other people’s minds (as an advanced component of
a “theory of mind”; Rondal & Quiros Ramirez, 2007) that have not been systematically studied in persons with Down syndrome.

Discourse

Reilly et al. (1991) have compared MA-matched adolescents with Williams syndrome (a congenital condition of moderate and mild intellectual disability etiologically linked to the hemizygotic absence of a dozen of genes on chromosome 7) and Down syndrome in a story-telling task. The subjects were introduced to a wordless picture book and asked to construct a story from the pictures as they progressed page by page through the book. In contrast with adolescents with Down syndrome, the adolescents with Williams syndrome told coherent and complex narratives making extensive use of affective prosody. They enriched the referential contents of their stories with narrative, affective and social cognitive devices (e.g., mental verbs, emphatic and intensifier forms, negative markers, causal connectors as well as onomatopoeic forms).

A study by Chapman et al. (1991) confirms the particular difficulty of children and adolescents with Down syndrome in online story processing. In such contexts, these subjects no longer demonstrate the fast-mapping ability with novel words which they currently exhibit in simpler event contexts. In story contexts, subjects with Down syndrome encounter additional difficulties in processing the narrative structure and in memory for story gist generally. These difficulties interfere with inferring the likely referent of the novel words preventing the fast-mapping production forms observed in event contexts to occur.

More generally, however, Chapman et al. (1992) report significant increases in the narratives of older adolescents with Down syndrome (CAs between 16 and 20 years) in comparison with children with Down syndrome and younger adolescents aged 5 to 16 years. Chapman (1995) suggests that these data contradict the hypothesis of a critical period in language development of MR children which would terminate around puberty or before. As discussed below, contemporary views of the critical period hypothesis are modular and restrict the temporal constraints to the computational aspects of language development. The discursive dimension is not specifically concerned with the grammatical structure of language (Halliday, 1985). It relates to the network of relationships between clauses and/or paragraphs allowing for textual cohesion. It may be expected that at least some adolescents and adults with Down syndrome can continue progressing on this aspect as well as on other cognitive aspects of the language system given correct opportunities and stimulation.

The Critical Period Problem

The question whether there exists a critical or a sensible period for first language acquisition has practical relevance for children with intellectual disability and Down syndrome given that they usually fail to complete the typical developmental course by the end of childhood. The notion of a critical period for first language development was initially proposed by Lenneberg (1967). Outside the field of intellectual disability, series
of data (Curtis, 1989; Mayberry et al., 1983; Ploog, 1984; Newport, 1992) support a milder and slightly diverse form of critical period hypothesis. It is limited to two language components, phonology and morphosyntax, with different temporal definitions (the phonological critical period being shorter than the morphosyntactic one). These periods relate to temporal evolution in the optimal brain ability to implicitly extract regularities regarding distributional features of language.

Lenneberg et al. (1964) reported data supporting the hypothesis of a ‘freeze’ in language acquisition in Down syndrome after roughly 14 years. Sixty-one individuals with Down syndrome aged CA 3-22 years at the beginning of their study were followed over a three-year period. Those who had attained puberty failed to make further progress in language structures. This was in contrast to younger subjects for whom some growth was observed. However, judging from the unclear report of Lenneberg et al. (1964) on this point, it seems that only 4 subjects were beyond CA 14 years when tested, too limited a sample for allowing a safe generalization.

We have recorded the spontaneous speech of 24 French-speaking adolescent with intellectual disability of mixed etiologies in dyadic conversational interaction with an adult without disability (Rondal et al., 1980). Mean MLU for the 16 subjects whose ages were between 14 and 18 years was 5.52. Mean MLU for the subjects aged 12-14 years was 5.15, not significantly different from the older group. None of the other language measures yielded a significant difference between younger and older subjects (type-token ratio; proportion of correct articles; proportion of correct verbal inflections; proportion of sentence; sentence complexity; proportion of information; or proportion of new information).

Fowler (1988) has supplied conversational MLU data from a group of adolescents with Down syndrome (aged 12-19 years). She split her group between subjects with lower Stanford-Binet IQs (38-48) and higher IQs (55-64). Mean MLU in words plus grammatical morphemes reached 3.58 in the lower and 3.78 in the higher IQ group (with marked individual differences in the two groups). These MLU figures may be compared to the middle age group (7-12 years) also studied by Fowler (1988). Corresponding MLU data for this group were 2.56 in the lower IQ and 4.03 in the higher group. Corresponding results were obtained by Fowler (1988) with a second measure, the Index of Productive Syntax, awarding points for the occurrence in the speech sample of 56 kinds of morphological and syntactic forms. In another study, Fowler et al. (1994) reported no further modification in MLU over a 2 to 4 years following initial measurement in four adolescents with Down syndrome (mean CA 12 years and 7 months at the beginning of the study). MLU remained in the range 3-3.50 words plus grammatical morphemes.

Regarding speech, Buckley and Sacks (1987) have reported that over half of the adolescent girls and about 80 per cent of the adolescent boys in their survey were rated by their parents as unintelligible to strangers. Intelligibility in adolescents with Down syndrome does not seem to have changed much from the reports of Lenneberg (1967), Ryan (1975) and Rondal (1978). Bray and Woolnough (1988) confirm that intelligibility
of speech is a serious problem in many children and adolescents with Down syndrome, even for those displaying a more advanced syntax.

Van Borsel (1988) undertook a comprehensive analysis of the elicited speech of five Dutch-speaking girls with Down syndrome (CAs from 16 to 20 years), including a phonetic, a substitution, and a phonological process inventory. All Dutch phonemes occurred in the corpus of each subject, except the low-frequency loan-phonemes /ß/ and /Ω/. Results indicate that the speech errors of the adolescents with Down syndrome are for the greater part identical to the error patterns observed in younger typically developing children.

Observations regarding several aspects of the language of French-speaking children, adolescents, and adults with Down syndrome can be found in Comblain’s doctoral work (1994) at the Laboratory for Psycholinguistics of the University of Liège. (see also Rondal & Comblain, 1996). She proposed a series of randomized language tasks to 11 children with Down syndrome (8 girls and 3 boys), aged 7 to 13 years, 16 adolescents (9 girls and 7 boys), aged 14 to 21 years, and 15 adults (9 females and 6 males), aged 24 to 42 years. All subjects had standard trisomy 21. The MLU values reported for the children and adolescents groups are consistent with those of Rondal et al. (1980), Fowler (1988), and Fowler et al. (1994), suggesting no change in productive morphosyntactic ability from late adolescence to early adult ages.

Chapman et al. (1998) have reported contradictory results from cohorts of individuals with Down syndrome aged between 5 and 20 years. MLU increased with CA throughout the age range in both conversational and narrative language samples. MLU increases were larger in narrative than in conversational context, most notably after age 16, although the individual variability became also larger at this point. Chapman et al.’s data may be particular in the sense that their 12-16 aged-group scored relatively low with comparison to the younger one (as well as to comparable age-group samples in Fowler’s 1988 study, mentioned before, and even with regard to the MLU data reported by Rondal, 1978, for his English-speaking children around 12 years of age), which made appears the MLU difference between the older group (16-20 years) and the younger one in Chapman et al.’s data more important than it might have been otherwise.

Thordadottir et al. (2002) also claim that syntactic development in individuals with Down syndrome continues in late adolescence. They report that in narrative languages samples, both older children and adolescents with Down syndrome and a group of typically developing children matched on MLU, use conjoined and subordinate sentence forms (ten percent of the time). It is interesting to observe that some subjects with Down syndrome sometimes use complex syntactic forms to a limited extent. However, it is hard to see why the authors have interpreted their data as contradicting previous conclusions regarding the critical period question given that these data concern solely the adolescent years.

There is no clear indication of a continued progress in phonological and morphosyntactic aspects of language beyond mid-adolescence (earlier for the
phonological aspects) in Down syndrome. There may be some continued progress, at least in some individuals, regarding other aspects of language, for example, lexical, pragmatical, and communicative abilities (Zetlin & Sabsay, 1980; Owings et al., 1981; Berry et al., 1984; Abbeduto et al., 1991), yet to be investigated more thoroughly.

Interindividul Variability

Many, but not all, individuals with a given syndrome demonstrate the characteristic behaviours of the syndrome. Nor will each individual show the typical behaviours to the same extent. Some within-syndrome variability exists in every syndrome of intellectual disability studied so far (Hodapp & Dykens, 2004). Regarding physical outcomes, for example, although many professionals consider epicanthal folds as the hallmark facial characteristics of persons with Down syndrome, at least during infancy, only around 60 per cent of infants with Down syndrome exhibit those characteristics (Pueschel, 1995). The same is true regarding the domains of behavioural and cognitive development.

The reasons behind within-syndrome variability are undoubtedly complex. Some have to do with the probabilistic nature of the genetic effects. Genetics is better conceptualized as predisposing a person to have one or another aetiology-related neurobehavioural trait expressed to a certain extent in her/his phenotype. Essentially, genes provide the starting point of complex multidirectional epigenetic pathways. The interactions between genotype and environmental events from the time of conception on determine the spans of individual variation. Behavioural phenotypes can also change at different chronological age. Often relative strengths become stronger with age and weaknesses weaker. Cascade effects may be operating in such ways that early propensities lead to greater personal and other people’s interest; greater interest and time spent performing these activities lead to increased skills. In this perspective, family background variables have not been studied sufficiently, although they are considered customarily to have a role in the individual differences between people with Down syndrome and other syndromes of intellectual disability.

Some individual differences in language development may be particularly striking. Studies have been published of individuals with Down syndrome demonstrating atypical language abilities, i.e, abilities beyond those currently observed in the syndrome (Rondal, 1995; Rondal & Edwards, 1997). As discussed in Rondal (2003, 2009), the major determinants of morphosyntactic and phonological differences between atypical and typical individuals with Down syndrome operate at brain level. There may exist significant within syndrome variability in some brain areas of the persons with Down syndrome devoted to language, consequent upon genetic variations. Of importance, is the observation that language-exceptional individuals with Down syndrome are atypical only with respect to the phonological and morphosyntactic aspects of language, which is consistent with a modular conception of basic language organization (Rondal, 2006, 2009).
Language Ageing

Physically and biochemically some earlier aging processes appear to be at work in persons with Down syndrome (Franceschi, 1998; Van Buggenhout et al., 2001). This is independent of the susceptibility in roughly 20 percent of these persons to develop an Alzheimer-like degenerative brain pathology (Rondal et al., 2003). Fenner et al. (1987) have reported a decline in mental age in less than one-third of their total sample (n=39) of persons with Down syndrome between 20 and 49 years and in just over one-third of the subjects older than 35 years. Ribes and Sanny (2000) have documented a lowering in short-term and longer-term memory capacity, vocabulary of use, and expressive as well receptive language abilities, in adults with Down syndrome. According to their data, there is already a slight decline in the cognitive and language aspects evaluated between 20 and 40 years. However, a more marked decline takes place beyond 40 years. Along a similar line, Moss et al. (2000) have reported an inverse relation between age increase and several aspects of auditory linguistic comprehension in a cohort of participants with Down syndrome aged between 32 and 65 years. Correspondingly, Prasher (1996) has documented an age-associated decline in short-term memory, speech, practical skills, general level of activity and interest, in 20% of the persons with Down syndrome aged 50 to 71 years.

Other research works are less definitive. Little to no change in nonverbal reasoning, memory, language (receptive and expressive vocabulary), planning and attention, perceptual-motor and adaptive skills, until close to sixty years, is suggested in a study by Das et al. (1995). The same authors remark, however, that their older persons with Down syndrome (those over sixty years) showed a poorer performance than those in younger groups, on tasks requiring attention and planning. George et al. (2001) have conducted a four-year longitudinal study of 12 participants with Down syndrome (six women and six men), aged between 36 and 48 years at the beginning of the study. The language functions (receptive as well as productive; with tasks concerning the lexical, morphosyntactic, and discursive aspects of language) were assessed at one year interval as well as a number of nonverbal cognitive abilities [short-term memory auditivo-verbal as well as visuo-spatial, episodic memory (using an adaptation of the Child Rivermead Behavioral Memory Test; Wilson et al., 1991); visual perception, visuo-spatial functions, executive functions, reasoning (evaluated with the K-ABC, Kaufman & Kaufman, 1993), and attention]. None of the analyses yielded a significant result failing to corroborate the null hypothesis of a language change and/or a change in nonverbal cognitive functions over the four years of study. Comparing that part of the above language data obtained with the use of the receptive subtests of the Batterie pour l'Evaluation de la Morpho-Syntaxe (Comblain, 1995) with corresponding data reported by Comblain (1994, 1996) from her study of adolescents (mean CA: 16 years and 7 months) and younger adults (mean CA: 26 years and 9 months) [the three cohorts having comparable MA (4 years and 4 months, standard deviation: 8 months, for the adolescents; 4 years and 7 months, standard deviation: 9 months, for the younger adults; 4 years and 4 months, standard deviation: 6 months, for the older adults], Rondal and Comblain (2002) argued that no marked change takes place in the receptive
morphosyntactic abilities of persons with Down syndrome in the interval of time between late adolescence and roughly fifty years of age.

Other longitudinal studies have contributed observations allowing the same conclusion. Devenny et al. (1992) and Burt et al. (1995) did not observe significant changes in the cognitive functioning of individuals with Down syndrome aged between 27 and 55 years, and 22 and 56 years, in the two studies respectively, over intervals of time going from 3 to 5 years. Devenny et al. (1996) reported only four cases of cognitive involution in 91 subjects with Down syndrome followed for several years beyond the age of fifty years.

Bilingual Ability

A question asked more and more often by parents and other people concerned with individuals with Down syndrome, is whether it is reasonable, or advisable and effective to expose children with Down syndrome to developmental contexts and learning situations involving two languages. There is anecdotal evidence (Buckley, 1999, and Rondal, 2003b, for reviews) suggesting that a number of children and adults with Down syndrome may exhibit some degree of bilingual competence. Some of these children and adults are able to understand and to speak two, sometimes three languages. The usual problem with anecdotal data is that their validity and reliability are difficult to establish. One case of language-exceptional individual with Down syndrome has been documented by Vallar and Papagno (1993). FF, an Italian girl of 23 years at the time of the study, with standard trisomy 21, exhibited a good acquisition of Italian (her maternal tongue) and to a lesser degree of English and French vocabularies and expressive morphosyntax. She showed correct articulation in the three languages. It would seem then that learning foreign languages are within the capacities of at least some children with Down syndrome.

Recent group data and analyses by Kay-Raining Bird and associates (Kay-Raining Bird, 2006; Kay-Raining Bird et al., 2005; Feltmate & Kay-Raining Bird, 2008) confirm this indication with contrasted group data and systematic psycholinguistic analyses of children with Down syndrome raised bilingually (English and one other language either French or Cree - a native American language). The results provide evidence of a similar profile of language abilities in bilingual as has been documented for monolingual children with Down syndrome. There appears to be no evidence of a detrimental effect of bilingualism on the competence in English on any of the language components, including syntax and inflexional morphology. Nonetheless there is considerable diversity in the second-language abilities demonstrated by individual children with Down syndrome. It would appear that these children have the same (but unfortunately limited ability) to develop second-language competence as typically developing children. The clinical implications therefore are the same as for first – and only – language acquisition.
Conclusions

Thanks to the large number of research work conducted over the last fifty years or so, we now dispose of a rich data base regarding the language of persons with Down syndrome across the lifespan. Specific information is still needed regarding prelinguistic development, particularly the first weeks and months of life, if only to establish whether the sensitivity usually exhibited by typically developing babies towards the prosodic and distributional aspects of their language input is also be found in infants with Down syndrome. Data are partially insufficient concerning the later adult and aging years. On the whole, nowhere do we find indications of deviant patterns and mechanisms. Wherever analyzed in sufficient detail, the language of persons with Down syndrome demonstrates quantitative differences, significant delays, and incompleteness, particularly regarding more the complex aspects, but no qualitative difference in the sense of developmental steps or processes unknown in so-called normal development.

This basic normality of language development in Down syndrome, leaving aside the purely temporal and quantitative characteristics, has important consequences which have not been analyzed in depth in this paper but are worthwhile acknowledging such as the validity of using developmental data from language acquisition in typically developing children in order to evaluate progress and assess the efficiency of the remediation procedures used with individuals with Down syndrome.
References


Planning a Comprehensive Program for Young Children with Autism Spectrum Disorders

Abstract

This article outlines two compatible models for planning and implementing programs for students with autism spectrum disorders (ASD). The Ziggurat Model begins the process with an assessment of individual strengths and concerns related specifically to ASD and identifies interventions across five tiers that are matched to the individual’s profile: (a) sensory and biological, (b) reinforcement, (c) structure and visual/tactile supports, (d) task demands, and (e) skills to teach. Content from the Ziggurat Model is then placed with the Comprehensive Autism Planning System (CAPS) to allow the child’s day to be operationalized and matched to student goals, state standards, and related benchmarks. This article overviews this process and offers a brief case study as an example.

Keywords: Autism spectrum disorders, the Ziggurat Model, the Comprehensive Autism Planning System (CAPS).

Introduction

Autism spectrum disorders (ASD) are pervasive developmental disorders that have lifelong impact. Research has shown that early intervention is critical to improved long-term outcomes (Dawson & Osterling, 1997; Eikeseth, Smith, Jahr, & Eldevik, 2007; Harris & Handleman 2000; Lord, 1995; McEachin et al. 1993; Rogers, 1998; Smith et al. 2000).

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Horner, Carr, Strain et al. (2002) discuss the importance of comprehensive intervention planning and state that comprehensive interventions involve multiple strategies applied across all or most of the individual’s day. As educators and parents strive to develop meaningful interventions for young children with autism spectrum disorders, they need a process for pulling together a number of strategies to address complex needs and they need a method for implementing those strategies throughout an individuals’ day.

The process of comprehensive intervention planning begins with a thorough understanding of the individual’s needs, especially those related to the underlying characteristics of ASD. Next, a comprehensive daily schedule for the child is critical. A schedule should embed the supports needed for success as well as develop individual skills and measure those skills with a vision of how this will affect the child now and in the future (National Research Council, 2001). This is achieved through well-organized planning with clearly defined objectives and goals.

Far-reaching changes have occurred in the educational system in recent years, including the identification of teaching strategies and models that result in positive gains for young children with ASD. The use of Lovaas’ (1987) form of applied behavior analysis, the Early Start Denver Model (Dawson et al., 2009) and Project Data (Boulware, Schwartz, Sandall, & McBride, 2006), have all resulted in skill increases for those with ASD. While each approach is unique they share some commonalities: comprehensive planning, use of multiple materials, systematic program implementation, and progress monitoring. Educators and parents using these models often experience challenges in identifying and tracking (a) which materials and supports match student needs and are required for specific activities, (b) which materials and activities lead to positive outcomes, (c) data collection, and so forth. To date, no system or framework has existed that can accomplish these lofty goals and support fidelity of implementation. The purpose of this article is to introduce two linked comprehensive planning models that meet the rigor required by comprehensive planning systems: the Ziggurat Model (Aspy & Grossman, 2008) and the Comprehensive Autism Planning System (CAPS; Henry & Myles, 2007). Together these models link characteristics to evidence-based interventions and present them in an easy-to-use format. The Ziggurat and CAPS are methodology free. That is they can be used with almost any model, including the Early Start Denver, Lovaas’ ABA, and TEACCH.

What Is the Ziggurat Model?

The goal of the Ziggurat Model, a comprehensive planning system for those with ASD, is that underlying needs and characteristics of the individual related to the autism spectrum must be addressed. Therefore, the Ziggurat Model is designed to utilize individual strengths to address true needs or underlying deficits that result in social, emotional, and behavioral concerns. The Ziggurat approach centers on a hierarchical system, consisting of five levels that must be addressed for an intervention plan to be comprehensive (see Figure 1).
When designing a comprehensive program, it is essential to consider the context of the underlying autism spectrum disorder. This is overlooked all too often. Targeting underlying needs leads to interventions that are proactive and fundamental. In comparison, interventions that are solely designed to address surface behavior without consideration of the underlying ASD are potentially less effective and less likely to result in sustained behavior change.

As mentioned earlier, the process of intervention design should begin with an assessment of the presenting characteristics of ASD. A thorough assessment of underlying characteristics helps parents and professionals plan a program that takes into account individual strengths and needs. Further, assessment of underlying characteristics provides insight into which skills should be taught and how to design instruction that facilitates learning and brings about meaningful, long-lasting change. The Underlying Characteristics Checklist – Early Intervention (UCC) offers a comprehensive perspective as a basis for program planning for young children with ASD.

The Underlying Characteristics Checklist
The UCC is an informal assessment designed to identify ASD characteristics for the purpose of intervention. There are three versions of the UCC: (a) one intended for use with individuals who are high functioning (UCC-HF), including those with Asperger Syndrome (AS); (b) one for use with those with a more classic presentation (UCC-CL) in cognition and speech-language skills; and (c) one for young children (UCC-Early Intervention [EI]). The UCC is comprised of eight areas. The first three represent the autism spectrum triad: social, restricted patterns of behavior interests and activities, and communication. Characteristics often associated with ASD are addressed in the next four areas: sensory differences, cognitive differences, motor differences, and emotional vulnerability. The eighth underlying area is known medical and other biological factors.

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Based on the results of completing the UCC, a comprehensive intervention plan is developed that targets ASD characteristics by incorporating each of the five levels of the Ziggurat. The UCC may be completed by parents, teachers, or other service providers, individually or as a team.

The Individual Strengths and Skills Inventory
The Individual Strengths and Skills Inventory (ISSI) was designed to accompany the UCC. The ISSI parallels the first seven areas of the UCC. The purpose of this tool is to ensure that underlying strengths and skills are incorporated in the intervention design process. For example, one child may have a strength in imitation whereas another has an intense interest in and knowledge of animals. These assets can easily become keys to addressing underlying skill deficits. An example of a completed ISSI is provided in the case example of Maria.

Global Intervention Plan
The Global Intervention Plans helps the multidisciplinary team address quality of life, including long- and short-term goals for the individual with ASD. The team uses this information to prioritize items from the Underlying Characteristics Checklist that will be matched to interventions using the Ziggurat Worksheet.

The Intervention Ziggurat
The Intervention Ziggurat (IZ), the cornerstone of the Ziggurat Model, is the framework on which comprehensive interventions are built. The IZ is comprised of five critical levels structured into a hierarchy: Sensory Differences and Biological Needs, Reinforcement, Structure and Visual/Tactile Supports, Task Demands, and Skills to Teach (see Figure 1). The first level, Sensory Differences and Biological Needs, addresses basic internal factors that impact functioning. The second level addresses reinforcement – meeting the motivational needs prerequisite to skill development. The third level, structure and visual/tactile supports, draws on individuals’ visual processing strengths and addresses their fundamental need for order and routine. The final two levels of the IZ emphasize the importance of expectations and skill development relative to the characteristics of individuals with ASD.

The IZ helps parents and educators avoid overlooking critical areas that impact the effectiveness of any intervention plan. Each of the levels is essential and contributes to the effectiveness of the others. Thus, if needs on all levels are not addressed, the intervention will not be as effective and skills will not develop. The following is a brief discussion of the five levels of the Intervention Ziggurat.

Sensory differences and biological needs
The first level of the IZ represents what is, in one sense, the basis of all behavior—biology. Consideration of biological factors is especially important in the case of ASD due to the strong genetic and neurological underpinnings of this disorder. Unmet sensory and biological needs will result in changes in behavior, highlighting the importance of including strategies to address these needs.
While sensory differences and biological needs are not included as symptoms of ASD in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association [APA], 2000), they often present some of the greatest challenges for individuals on the spectrum. For example, anxiety, distractibility, overactivity, impulsivity, perseveration, delayed receptive and expressive language skills, poor social skill development, and poor eye contact have all been related to sensory challenges (cf., Pfeiffer & Kinnealey, 2003; Stackhouse, Graham, & Laschober, 2002).

Research exists on sensory and biological interventions for individuals with ASD. For example in 2009, Case-Smith and Arbesman identified 49 studies conducted on sensory and motor interventions. Much of the research on biological interventions has centered on the use of medications, including antidepressants (cf., Namerow, Thomas, Bostic, Prince, & Monuteaux, 2003); antipsychotics (cf., Erickson, Stigler, Posey, & McDougle, 2005); and stimulants (cf., Di Martino, Melis, Cianchetti, & Zuddas, 2004).

**Reinforcement**

Because of its fundamental nature, reinforcement is included as the second level of the Intervention Ziggurat. All intervention plans ultimately target the development or increase of a behavior or skill. This goal can only be accomplished by incorporating reinforcement into the comprehensive plan. Without reinforcement, there is no intervention. Indeed, effective intervention programs deliver reinforcement for positive behaviors (cf., Horner, Carr, Strain, Todd, & Reed, 2002).

In seeking to identify effective reinforcers – often a challenging task – it is often helpful to consider the individual’s interests or preoccupations (Winter-Messiers, 2007; Winter-Messiers et al., 2007). Indeed, research has found that activities or objects related to interests may be most effective for individuals on the autism spectrum (cf., Charlop-Christy, Kurtz, & Casey, 1990).

**Structure and visual/tactile supports**

Individuals with ASD function best when the school day is predictable. Supports such as pictures, schedules, learning strategies, and task strips may be used as tools to clarify activity structure and increase academic/social performance (cf., Betz, Higbee, & Reagon, 2008; Ganz, Kaylor, Bourgeois, & Hadden, 2008; Songlee, Miller, Tincani, Sileo, & Perkins, 2008). Tactile supports are an alternative to verbal communication and should be considered, especially for individuals with a visual impairment. Thus, the third level of the IZ is a direct response to these core characteristics of ASD.

**Task demands**

The term *task demand* can be thought of as obstacle removal (E Blackwell, personal communication, 2007). In designing quality interventions, obstacles that could prevent an individual from succeeding either independently or with assistance should be taken away. For example, a team may recognize that because a child lacks the skills to negotiate peer conflict, he will be provided a trained peer “buddy” during group activities until he is able to master strategies for compromise. The obstacle: lacking the skills to negotiate peer
conflict; how it is removed: a trained peer buddy who can help the child in situations that require compromise. Numerous interventions reduce demands. For example, peer networks (cf., Kamps, Dugan, Potucek, & Collins, 1999), circle of friends (cf., Frederickson, Warren, & Turner, 2005), and peer buddies (cf., Laushey & Heflin, 2000) have been found to be beneficial in promoting social skills.

Skills to teach
The first four levels of the Ziggurat set the stage for skill acquisition. It is possible to resolve many concerns using strategies on the first four levels without ever teaching skills. Indeed, many improvements may be seen as a direct result of attending to an individual’s biological needs, providing meaningful reinforcers, addressing the need for structure and predictability, and carefully matching demands to ability. Comfortable with behavior gain, intervention teams may overlook this crucial last level. However, such a “partial” approach to intervention will have negative long-term outcomes because it does not allow for independence or promote generalization or growth. It is for this reason that Skills to Teach is the ultimate goal of any intervention plan. Several approaches to teaching skills to individuals with ASD have been supported in the literature, including priming (cf., Zanolli, Daggett, & Adams, 1996); formal social skills group instruction (cf., Lopata, Thomeer, Volker, Nida, & Lee, 2008); and pivotal response training (PRT; cf., Harper, Symon, & Frea, 2008).

Ziggurat Worksheet
The Ziggurat Worksheet guides the team through the development of a comprehensive intervention plan. With a new understanding of the child’s needs based on completion of the UCC and the information on strengths and current skill level provided through completion of the ISSI, the team is now prepared to design an intervention plan that is targeted to the individual. Areas of the UCC are prioritized and specific UCC items are selected. All interventions incorporated into the plan must address underlying needs from the UCC. This provides a safeguard from developing a plan that addresses only surface concerns or from recycling interventions that have been used with others with ASD without careful consideration of the specific child. Further, the Ziggurat Worksheet promotes collaboration by helping parents and professionals to understand their part in the larger intervention picture.

An intervention plan is truly comprehensive when interventions address each of the five levels of the Intervention Ziggurat, three points of intervention—antecedent, behavior, and consequence—and when each intervention strategy addresses underlying characteristics from the UCC. The Ziggurat Worksheet provides a structure for verifying that the intervention plan is indeed comprehensive. Interventions that are not comprehensive leave unnecessary “holes” where difficulties may occur and begin to undermine the effectiveness of the intervention techniques that are put into place. After completion of the Ziggurat Worksheet, the team is ready to complete the CAPS. While the Ziggurat Worksheet allows a team to know that the intervention plan is thorough and targeted, the CAPS provides a structure for implementation.
What Is the Comprehensive Autism Planning System (CAPS)?

CAPS provides an overview of an individual’s daily schedule by time and activity and specifies of supports that he needs during each period. Thus, the CAPS enables professionals and parents to answer the fundamental question: What supports does the child need for each activity?

Once a multidisciplinary team, including the parents, has identified the child’s needs through completion of the UCC (HF, CL, EI) and ISSI and has developed interventions across the five areas of the Ziggurat that match the child’s UCC- and ISSI-identified strengths and concerns, the team is ready to complete the CAPS. That is, based on information developed using the Ziggurat Model, the CAPS is a list of a child’s tasks and activities, the times they occur, along with a delineation of the supports needed for success. In addition, the CAPS includes a place for recording the results of ongoing data collection and consideration of how skills are to be generalized to others settings.

Components of CAPS

The CAPS contains the following components:

1. **Time.** This section indicates the clock time of each activity that the child engages in throughout the day.
2. **Activity.** Activities include all tasks and activities throughout the day in which the individual requires support. Academic periods (e.g., preliteracy), nonacademic times (e.g., circle time, lunch) as well as transitions are all be considered activities.
3. **Targeted Skills to Teach.** This may include IEP goals, state standards, and/or skills that lead to school success for a given child.
4. **Structure/Modifications.** Structures/modifications can consist of a wide variety of supports, including placement in the classroom, visual supports, peer networks and instructional strategies (e.g., priming, self-monitoring).
5. **Reinforcement.** Student access to specific types of reinforcement as well as reinforcement schedules are listed here.
6. **Sensory Strategies.** Sensory supports and strategies identified by an occupational therapist or others are listed in this CAPS area.
7. **Communication/Social Skills.** Specific communication goals or activities as well as supports are delineated in this section. Goals or activities may include (a) requesting help, (b) taking turns, or (c) protesting appropriately. Supports may encompass language boards or augmentative communication systems.
8. **Data Collection.** This space is for recording the type of data as well as the behavior to be documented during a specific activity. Typically, this section relates directly to IEP goals and objectives.
9. **Generalization Plan.** Because individuals with ASD often have problems generalizing information across settings, this section of the CAPS was developed to ensure that generalization of skills is built into the child’s program.

Figure 2 depicts which Ziggurat areas the CAPS items are drawn.
Figure 2. Depiction of where CAPS items are drawn from the Ziggurat.

<table>
<thead>
<tr>
<th>CAPS Intervention Areas</th>
<th>Ziggurat Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/Modifications</td>
<td>Structure and Visual/Tactile Supports</td>
</tr>
<tr>
<td></td>
<td>Task Demands</td>
</tr>
<tr>
<td></td>
<td>Skills to Teach</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>Reinforcement</td>
</tr>
<tr>
<td>Sensory Strategies</td>
<td>Sensory/Biological</td>
</tr>
<tr>
<td>Social Skills/Communication</td>
<td>Structure and Visual/Tactile Supports</td>
</tr>
<tr>
<td></td>
<td>Task Demands</td>
</tr>
<tr>
<td></td>
<td>Skills to Teach</td>
</tr>
</tbody>
</table>

Case Study for Michael: From Ziggurat to CAPS

Maria is a three-year old child attending an early childhood program in a public school. She is identified with ASD and speech impairment. Parents report that Maria experienced a language delay. Currently, Maria can label objects and make one-word requests when prompted. She does not initiate communication or social interaction with adults or peers. Eye contact is fleeting and she seems to display limited interest in others. Maria withdraws from group activities and spends extended periods of time engaged in repetitive behaviors such as jumping and wiggling her fingers in her peripheral vision. Maria requires prompting in order to engage in play and extended social interactions. Parents and teachers believe that if Maria could stay on-task longer, she would make more progress at home and in school. They also express concern with apparent sensory differences. Maria frequently smells and mouths objects and toys, is bothered by loud or unexpected noises, startles when there is unexpected movement, and has difficulty participating in groups in a loud environment. She becomes distressed when her teeth are brushed. Maria seeks movement. She frequently shakes objects in her peripheral vision, rocks, and jumps. Maria appears to be visually distracted and captivated by straight lines such as mini-blinds and corners of shelves, books, frames, etc.

Interventions tried in the past include interactive metronome, therapeutic listening, and cremation. Parents reported that these interventions have resulted no in change in Maria’s behaviors and skill acquisition. The school provides the following sensory interventions: a
weighted vest, a weighted lap pad, picture schedules, and use of a color-coded square for positioning during circle time. Currently, Maria receives speech therapy at school and participates in outpatient occupational therapy sessions three times per week.

Maria’s multidisciplinary team, including his parents, met to develop his program. They completed an ISSI (see Figure 3), UCC-EI, Global Planning Guide (see Figure 4 for the guide that also include UCC-EI items) and using information from these activities, Maria’s team completed the Ziggurat Worksheet (see partial copy in Figure 5). Finally, they created a CAPS for her school program (see partial copy in Figure 6).

Figure 3. Maria’s ISSI

Individual Strengths and Skills Inventory-ISSI
Ruth Aspy, Ph.D., and Barry G. Grossman, Ph.D.

When designing an effective intervention plan, it is important to consider individual strengths. Please describe strengths in the following areas:

<table>
<thead>
<tr>
<th>Social</th>
<th>Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Kind child</td>
<td>● Enjoys jumping, running, and climbing</td>
</tr>
<tr>
<td>● Engages best during predictable, repetitive activities</td>
<td>● Strong</td>
</tr>
<tr>
<td>● Engages in parallel play in quite settings</td>
<td>● Plays best during activities involving movement</td>
</tr>
<tr>
<td>● Plays with sister at home</td>
<td></td>
</tr>
<tr>
<td>● Responds well to parent praise</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior, Interests, and Activities</th>
<th>Emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Does very well with structure</td>
<td>● Happy child</td>
</tr>
<tr>
<td>● Prefers activities that are routine/predictable</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication</th>
<th>Biological</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Able to repeat words</td>
<td>● Strong</td>
</tr>
<tr>
<td>● Able to label objects and make simple requests with prompting</td>
<td>● Healthy</td>
</tr>
<tr>
<td></td>
<td>● Sleeps well</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensory</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Enjoys sand play</td>
<td>● Good memory</td>
</tr>
<tr>
<td>● Eats a range of textures</td>
<td>● Maintains skills</td>
</tr>
</tbody>
</table>
Directions: Following completion of the UCC and ISSI, the next step is to identify UCC areas and items that will result in a meaningful Global Intervention Plan. Consideration of priorities and strengths for an individual facilitates selection of UCC areas and items. The following questions are provided as a guide.

**Vision**

“Begin with the end in mind” – Stephen R. Covey

- What is the short and long-term vision of/for the individual?
  
  *Note that “short-term” and “long-term” may be defined differently in order to be meaningful.*
  
  **Short term:**
  - Play independently (currently requires prompting)
  - Pretend play
  - Increase communication skills – follow two-part directions; use four-word sentences; communicate with same-age peers
  
  **Long term (3 years):**
  - Tell us about an event that occurred at school
  - Make a friend

Which UCC areas would have the greatest impact on achieving this vision?

Social, Communication, Sensory Differences

**Settings**

- In what settings does the individual participate?
  - School, home, family, church, OT

Which UCC areas have the greatest impact on the individual’s ability to function in multiple settings?

Communication, Sensory Differences

**Quality of Life**

- What is most important to the individual? What provides a sense of well-being?
  
  *Consider independence, relationships, play/leisure activities, safety, health, etc.*

Jumping, watching television, dog, structure and predictability

Which UCC areas have the greatest impact on the individual’s quality of life?

Restricted Patterns of Behavior Interests and Activities

**Key UCC Areas**

Based on your answers to the questions above, place a check **X** next to the key UCC areas.

*Transfer to the Areas of Concern section of the Ziggurat Worksheet.*

- Social
- Restricted Patterns of Behavior Interests, and Activities
- Communication
- Sensory Differences
- Cognitive Differences
- Motor Differences
- Emotional Vulnerability
- Known Medical or Other Biological Factors
Select key UCC items for each of the UCC areas listed above. Choose items that are essential (necessary for progress) and developmentally appropriate. Emphasize items that are more pivotal (building blocks for additional skills). Avoid selecting redundant items.

Write key item numbers and descriptions below. These items will be used to develop interventions keeping strengths and skills (identified on the ISSI) in mind.

Transfer items to the **Selected UCC Item** section of the Ziggurat Worksheet. Develop interventions.

- Does not respond to the emotional expressions of familiar others
- Fails to initiate or respond to either verbal or nonverbal gestures and greetings
- Does not use sustained and purposeful eye contact or watch faces intently
- Does not spontaneously comment or share experiences – may speak only when asked a direct question
- Isolates self from others or chooses solitary play consistently and across settings
- Responds in an unusual manner to sounds
- Becomes upset easily with interruption to routines or unanticipated changes in events
- Responds in an unusual manner to visual input (angles/lines)
- Uses objects in repetitive, atypical manner
- Shows an unusual strong desire to do activities that provide movement
**Figure 5.** Maria’s Ziggurat Worksheet (partial view only).

**ZIGGURAT WORKSHEET (PARTIAL)**
Ruth Aspy, Ph.D., and Barry G. Grossman, Ph.D.

<table>
<thead>
<tr>
<th><strong>BEHAVIOR/AREAS OF CONCERN</strong></th>
<th><strong>FOR SPECIFIC INTERVENTION PLAN</strong></th>
<th><strong>SELECTED UCC ITEMS</strong></th>
<th><strong>CHECK ALL THAT APPLY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Restricted Patterns</td>
<td>Operationlized Behaviors</td>
<td>Does not respond to the emotional expressions of familiar others</td>
<td>A B C</td>
</tr>
<tr>
<td>Communication Sensory</td>
<td></td>
<td>Does not use sustained and purposeful eye contact or watch faces intently</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Isolates self from others or chooses solitary play consistently and across settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Becomes upset easily with interruption to routines or unanticipated changes in events</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uses objects in repetitive, atypical manner</td>
<td></td>
</tr>
<tr>
<td>Structure &amp; Visual/Tactile</td>
<td></td>
<td>Fails to initiate or respond to either verbal or nonverbal gestures and greetings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supports Intervention:</td>
<td>Does not spontaneously comment or share experiences – may speak only when asked a direct question</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Responds in an unusual manner to sounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Responds in an unusual manner to visual input (angles/lines)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shows an unusual strong desire to do activities that provide movement</td>
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</tr>
</tbody>
</table>

- **Structure & Visual/Tactile Supports Intervention:**
  - Use high levels of visual instructional strategies. Auditory is not a strength for Maria.
  - Use the Transporters video series and My Feelings book to help teach Maria to identify feelings based on facial expressions.
  - Video – interacting with dog. Play back with pause and narration
  - Visual support for telling about activities using objects or symbols (i.e., Board maker). Can also use similar support to describe weekend at home.

- **Underlying Characteristics Addressed:**
  - Does not respond to the emotional expressions of familiar others
  - Isolates self from others or chooses solitary play consistently and across settings
  - Does not use sustained and purposeful eye contact or watch faces intently
  - Fails to initiate or respond to either verbal or nonverbal gestures and greetings
  - Does not spontaneously comment or share experiences – may speak only when asked a direct question
  - Responds in an unusual manner to sounds
**Figure 6.** Maria’s CAPS (partial view only).

### COMPREHENSIVE AUTISM PLANNING SYSTEM

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Targeted Skills to Teach</th>
<th>Structure/Modifications</th>
<th>Reinforcement</th>
<th>Sensory Strategies</th>
<th>Communication/Social Skills</th>
<th>Data Collection</th>
<th>Generalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Arrival</td>
<td>Complete arrival steps independently</td>
<td>Task strip of arrival steps Emotion check-in poster</td>
<td>Reinforcement menu (after arrival steps)</td>
<td>Fidget</td>
<td>Language board Prompt to greet (fade)</td>
<td>D: # steps, greetings I, P Emotion (y/n)</td>
<td>Task strip at home for bedtime routine</td>
</tr>
<tr>
<td>9:10</td>
<td>Priming</td>
<td>Use language board to initiate, respond, comment</td>
<td>Visual schedule</td>
<td>Verbal reinforcement</td>
<td>Fidget or hold dog Carpet square</td>
<td>Language board Labeled area with icons to match schedule</td>
<td>M: # (5 min) initiations, responses, comments; 5 min</td>
<td>Language board at home Fidget at home</td>
</tr>
<tr>
<td>9:20</td>
<td>Sensory Break</td>
<td>Follow task strip Orientation to speaker</td>
<td>Visual schedule/task strip</td>
<td>Sensory activity is reinforcing Verbal reinforcement</td>
<td>Trampoline Dancing/ movement activity</td>
<td>Language board Labeled area with icons to match schedule</td>
<td>T: # steps, I, P # Orientation</td>
<td>Trampoline or fluffy pillows to jump on</td>
</tr>
<tr>
<td>9:30</td>
<td>Literacy/ Language Group</td>
<td>Use language board to initiate, respond, comment State standards Recognize emotion Independent transition to activity</td>
<td>Task strip of activities Visual schedule</td>
<td>Interacting with peers Verbal reinforcement</td>
<td>Fidget Carpet square</td>
<td>Language board Labeled area with icons to match schedule Transports My Feelings book</td>
<td>T # (5 min) initiations, responses, comments; Grade book T # steps, I, P</td>
<td>Read books at home</td>
</tr>
</tbody>
</table>

*Note: D=daily, M=Monday, T=Tuesday, I=Independent, P=Prompt.*
Summary

The Ziggurat Model and CAPS provide a unique way to develop and implement a meaningful program and comprehensive for a student with ASD. The structure fosters consistent use of supports to ensure student success as well as data collection to measure that success. Compatible with current trends in education of young children with ASD, the Ziggurat Model and CAPS are also easy to use.
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Book review by

Birkan Güldenoğlu

The Program Administrator's Guide to Early Childhood Special Education

Janen McCracken Taylor,
James R. McGowan & Toni Linder,
Paul H. Brookes Publishing Co., Inc, Maryland, 2009

This book has a characteristics of a guide book to clearly state how an early childhood special education system can be established, which is included by the system in this scope and how and how needs to take place within this system. It has been especially planned to be an instructive guide book for the professionals who would like to configure and bring into practice an early education system. Within this book, it was clearly explained the problems which may be encountered while establishing such a system in a complete manner and bringing it into action and how these problems may be handled, as well as the things which should be known in respect with the legal and educational aspects of this process. When we have a look at the cover of the book, it can be seen that many experts from different universities has participated to this book by the parts they have written.

When we have a look at the contents of the book, in general there are 16 chapters and attachments and indexes for these. It is seen that the chronology of the subjects within the book, just like in all books for early childhood special education, that it has started with the introduction parts where the historical process was told, that it is respectively followed by the subjects and the appendixes and indexes of the subjects such as screening and evaluation, planning and implementation, transitions and service coordination, supervision of professionals, budget and financing services, evaluation of the legal issues and early education program.

When we have a look at the first chapter, it is seen that the development of early education from the history up to now, has been stated and that it is introduced what the daily

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standards regarding the early education are. Besides this, it has been told what the main elements of an early education program are (Figure 1) and their relationship with each other. This part is an introduction, also in terms if its contents, which prepares the reader to the further parts.

Figure 1. Components of High-Quality Early Childhood Special Education Programs

When looked at the second chapter, we can see that the subject of the unit is effective leadership. In this chapter, it has been clearly expressed how an effective leader should be in general sense, and what the impacts of the concepts of vision-mission and the leadership specialties are, when carrying out a program or a school. While these subjects are told, the leadership theories of 20th and 21st century have been given a focus. Besides this, within this part, it has clearly been told what the vision-mission concepts are and their sub-elements as well. Finally a special consideration has been given to the question of which elements are necessary in order to create a cultural education-teaching ambiance (Figure 2) and to their detailed definitions. As a result, within this part, it is emphasized that effective leadership is very important to carry out a program, at the same time that the leaders need to have a very open and net visions, he/she needs to gain the trusts of his/her personnel and of all the supporters taking place within the program.

In the Third chapter the leadership and interagency between different powers and the subjects for providing the collaboration have been mentioned. It is stated that, when the professionals want to get support from different areas, they need to state very well the positive yields to be created in the children, in the families of the children and in themselves.
It is seen that in the fourth chapter, screening and evaluation have been given focus. First of all, a consideration has been given to the fact how the screening and evaluation take place in IDEA law and then each of these has been expressed in a detailed manner. Secondly, the measuring tools have been introduced which are widely used in screening and evaluation areas (Table 1 & 2), and the differences between the formal and informal measuring tools have been emphasized and information has been given for the content of each one. Consequently it has been stated that screening, monitoring and evaluation processes have been modified within the years and nowadays family-centered approaches are rather being preferred and the families took place in the entire process anymore and the responsibilities and the roles of the families in this process have been indicated.

In the fifth chapter, planning programs for infants and toddlers and for their families and practical subjects regarding these have been handled. The elements to care about, while preparing an education program for infants and toddlers and their families and their connections with each other, have been expressed in a detailed manner. Especially, a special focus has been given to the supports and strategies which are necessary with the family-centered practices. Besides this, it has been emphasized that the Individualized Family Service Plan (IFSP) is important and that the cultural features also need to be taken into consideration in the practices planned. The legal requirements for the planning of the program, the individualized family service plan of the infants\toddlers and the family who would receive early education support, and family -centered practices have been handled.
It has been emphasized that the family members or the people who deals with the taking care of the child are the first and most important teachers for the child and that providing information and support, towards the requirements of the families, and taking the practices into the daily routines and life of the child would have positive effects on the child. As a consequence, it was emphasized that not the child needs to adapt to the curriculum but the curriculum needs to adapt to the child.

Table 1

**Screening Instruments**

<table>
<thead>
<tr>
<th>Name of instrument</th>
<th>Publisher</th>
<th>Age range</th>
<th>Domains</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denver II</td>
<td>Denver Developmental Materials, Inc.</td>
<td>2 weeks- 6 years</td>
<td>Personal/social, Fine motor Adaptive, Language, Gross motor</td>
<td>Normal, Suspect, Untestable, Refer</td>
</tr>
<tr>
<td>ASQ</td>
<td>Paul H. Brookes Publishing Co.</td>
<td>Birth-60 months</td>
<td>Communication, Gross motor, Fine motor, Problem solving, Personal-social skill</td>
<td>Numerical score indicates “may need further evaluation”</td>
</tr>
<tr>
<td>DIAL-3</td>
<td>Pearson Education</td>
<td>2-6 years</td>
<td>Motor, Concepts, Language, Behavioral observation</td>
<td>Potential problems, OK, Potential advanced</td>
</tr>
</tbody>
</table>

In the seventh chapter, a focus has been given to how the technology should be included in the early childhood education settings. First of all, assistive technologies have been introduced; it was in a detailed manner handled how the students could make use of these while learning and how these could be used for the education. It was stated that one of the important missions of the early education is to make the children acquire quality education experiences and that the most important ways for acquiring these experiences is to include the assistive technologies to the daily routines of the children. It is stated that, in order to do this, the administrators, children and the people who are responsible for their education need to acquire the assistive technologies which may be used in the educations of the children, towards their requirements.

In the sixth chapter, the subject of preparing programs for preschoolers. Like always, it was started with the legal requirements and focused on education models for the children at preschool age who are disabled or not disabled, preparation of the programs and their adaptation. A focus has been given to the adaptation of the curriculum and the materials for the disabled children and it was in a detailed manner told how these adaptations would be
made and which activities they would include. Besides this, it was expressed what the elements of a quality curriculum program are and each of these has been briefly introduced.

Table 2  
*Selected evaluation and assessment instruments for use in determining the developmental status of young children or progress relative to their IFSP or IEPs*

<table>
<thead>
<tr>
<th>Name of instrument</th>
<th>Publisher</th>
<th>Age range</th>
<th>Domains</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI-2</td>
<td>Riverside Publishing</td>
<td>Birth to 7 years 11 months</td>
<td>Personal social, adaptive, motor, communication, cognitive ability</td>
<td>Developmental levels in each domain</td>
</tr>
<tr>
<td>Bayley-III</td>
<td>Pearson Assessment</td>
<td>Birth to 42 months</td>
<td>Cognitive, language, motor, social-emotional, adaptive</td>
<td>Standardized scores for mental and motor development plus social emotional and adaptive behaviour descriptions</td>
</tr>
<tr>
<td>CCITSN-3</td>
<td>Brookes Publishing</td>
<td>Birth to 36 months</td>
<td>Person-social, cognition, cognition-communication, communication, fine motor, gross motor</td>
<td>Status in each domain of the curriculum</td>
</tr>
<tr>
<td>CCPSN-2</td>
<td>Brookes Publishing</td>
<td>2-5 years</td>
<td>Person-social, cognition, cognition-communication, communication, fine motor, gross motor</td>
<td>Status in each domain of the curriculum</td>
</tr>
<tr>
<td>HELP Strands (0-3)</td>
<td>VORT Corporation</td>
<td>Birth to 36 months</td>
<td>Regulatory\ sensory, cognitive, language, gross motor, fine motor, social-emotional, self-help</td>
<td>Approximate developmental age levels in each domain</td>
</tr>
<tr>
<td>HELP-P</td>
<td>VORT Corporation</td>
<td>3-6 years</td>
<td>Cognitive, language, gross motor, fine motor, social-emotional, self-help</td>
<td>Approximate developmental age levels in each domain</td>
</tr>
<tr>
<td>LAP-D3</td>
<td>Kaplan Early Learning Company</td>
<td>30-72 months</td>
<td>Fine motor, gross motor, cognition, language</td>
<td>Child’s skill level in comparison to normative scores</td>
</tr>
</tbody>
</table>
When we have a look at the eighth chapter, it is seen transition in early childhood special education has been focused. In this part, first of all the definition of the transition, its types and the legal process have been explained and then a focus has been given to the effective transition strategies and the coordination between the people who are coordinating these and the family. In this part, a focus has been given to the transition experiences of the disabled children and their families, within a period of 5 years after their birth. With IDEA, the legal aspects of the transition services have been discussed and the agreements and the policies used during the transition services have been explained. It has been explained when the families and the school personnel need to start the transition process. It has been stated that the amount of the participation of the family to this process determined that the point of view of the professional and that the family needs to be included to all of the stages of this process gradually.

In the ninth chapter, professional development and guidance have been handled. A well planned professional development has numerous advantages in the early childhood special education. Lifelong learning is seen important for the development of family-centered practices, for the families as well as all professionals and pragmatics. This part starts with the role of professional development, its definition and its contents and has been finalized with the determination of the requirements for professional development, and the subjects how their evaluation and guidance (mentor) system can be planned and used. Besides this, some options have been offered for providing the professional development and each of these has been explained in a detailed manner. In order to obtain a quality professional development, the requirements of each participator must be met, participation must be provided by all of the participators to the decisions taken during professional development, a positive learning climate must be created and appropriate strategies must be chosen. As a consequence, in this part, it has been explained in a detailed manner how the mentoring system was created, its purposes, and how it can be established.

In the tenth chapter, the supervisions of the professionals and volunteers have been handled. First of all the supervision mechanism used in schools, then the system which needs to be applied and the standards have been introduced. And then the activities which are seen important for the supervision have been explained in a detailed manner. A plan definitely must be made before the supervision and data must be recorded within these plans. It has been emphasized that especially as a result of the administrators’ and coordinators’ giving importance to the supervision; a positive impact can be seen on the performances of special educators and other professionals working in this area.

When we look at the eleventh part, the health issues seen in the early education settings have been discussed. Any problems that may risk the health of the children and the strategies that may be used in order to prevent these have been handled, and information about the local health sources and some policies, practices and processes which can be developed regarding these subjects have been stated. In addition to this, the roles of the family and of other professionals which are in close contact with the child and the things they need to do have been explained. It has been stated that generally the health problems infects the children from each other in education environment and the precautions for these
have been explained. Likewise, it has been explained in a detailed manner that not only the children but also the people who are responsible for them are also under the risk group in term of many health problems and the solutions in order to prevent such health problems (as an example; daily health check, exclusion, hand washing, universal precautions and other health care measures). As a result, it has been stated that the personnel should be informed of such types of health problems which may occur and the appropriate environment should be arranged for the children.

In the twelfth chapter, the budget and finance in early childhood programs have been told. No matter how a good practice experience is available generally, the budget and finance issue has always created serious difficulties for the administrators. Especially due to the limited finance support, the transition processes are seen as a problem in early childhood education programs. In this unit, first of all it has been explained what the financial management is and the rules of this and what like an effective budget management must be and then a focus has been given to the fact that how the people performing the program should organize these. It has been stated that, since the administrator and the directors always need to take financial decisions, they need to act in accordance with the vision and missions of the institution while taking these decisions.

In the thirteenth chapter, grant management and writing proposal for providing this, have been expressed. Like in the previous unit, supply of the finance and budget sources and the subjects for managing these in an appropriate manner have been extended and continued. While these are being explained, a focus has been given on how the administrators should make use of local and national governments. It has been emphasized, in order to obtain income, to write project proposal and to receive projects from the local governments, associations and national institutions. It has been explained in a detailed manner to which issues have been focused while writing project proposal and besides this, whom and how it is necessary to make use of. The things necessary to perform in order to receive these grants and from whom assistance should be obtained, have been detailed in this part. Besides this, a focus has been given on the fact that writing a proposal is not such a difficult job, and only the process should be monitored and the methods should be known and followed. It has been emphasized that, when these grants are used properly, it is inevitable that it will be useful for both the child and for the family and also for the program carried out. At the end of the unit, it has been shown where the administrators can apply in order to receive a grant and the web site addresses of the relevant places have been given.

The fourteenth chapter is seen as the shortest written part in this book. In this unit, the legal grant issues have been explained which need to be known for establishing an early childhood special education program and for managing it. It has been explained that it is necessary to know the commercial aspects of the program besides the educational aspects, during the process where the program is performed and how the place carried out must be managed as a business. First of all, different managing structures have been introduced and it has been told that when the early childhood special education program is seen as a small business, that there are some legal rules which must be performed here just like all businesses and what should be made in order to fulfill these.
In the fifteenth chapter, the evaluation of the early childhood program has been introduced. It has been stated that the evaluation of the program is important as much as its application and an evaluation model has been offered for this purpose. According to IDEA, the ones who carry out the program legally need to create reports in three areas (social/emotional skills, use of knowledge and skills, and appropriate behaviors to meet their needs) and they should create a report and they should report the performance of the child in certain intervals. First of all, the purposes of the program evaluation process have been explained and then the evaluation process has been divided into stages and these stages have been explained one by one, respectively. As a consequence, ethical issues have been handled throughout the evaluation. Three sub clauses which are seen as most important in the ethical issues are; participation confidentiality, informed consent and evaluator integrity. The importance of three basic aspects in a good evaluation has been emphasized. These are; good evaluation questions, useful yields and programming.

In the sixteenth and the last chapter, the security and the issues for providing the security have been introduced. It has been stated that providing the security of a school is as important as the education performed inside it and that the administrators must perform such regulations within the framework of legal obligations. As a consequence, ten main rules have been stated which are necessary to be know in order to create a safe school ambiance and then each of these have been explained in a detailed manner.

As a result, when the book is examined, it can be seen that the book had been prepared in order to constitute a guide book in order to give information for those who would like to practice and create an early childhood special education program. The fact that the writing style and expressions are simple enough to provide everybody working in this area to understand it easily and that there are duplicable sample forms in the annexes part, about each subject, facilitates the liabilities of the people who are reading the book and who are working in the mentioned area.