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NEW APPROACHES IN HEARING AND UNDERSTANDING

The newborn screening program is identifying increasing numbers of children with hearing impairment. Such children can thus receive remedial support in good time, enabling them to attend normal schools and kindergartens. School integration is however not always without problems. Professor Annette Leonhardt examines the impact of improved provision of early support for such children, and on the integration of these children into schools and kindergartens.

The island of Martha's Vineyard stands as a symbol of how deaf and hearing people can live together successfully. Until the mid-20th century, one in every 155 of the island's inhabitants was deaf – a genetically induced form of deafness brought to Martha's Vineyard by immigrants in the 17th and 18th centuries. The island's isolated location meant that the condition was relatively widespread. Visitors there repeatedly were surprised to find that many of the population seemed scarcely aware of this unusual situation, for everyone knew sign language and most thought that the deaf were "just like anyone else". In contrast, the situation in the rest of the world tends to be the reverse. Deafness and hearing loss are a great deal rarer and affect only about one in a thousand children. Communication between hearing and deaf people is often considerably more difficult and the deaf feel like outcasts excluded from their surrounding milieu. New approaches need to be found to better integrate deaf people and those with hearing difficulties into society, for not all hearing people can learn sign language as a matter of course, as at Martha's Vineyard. The new diagnosis and treatment methods have been an important step toward improving the situation of hearing-impaired children in recent years. The new screening program, obligatory for all newborn babies since the beginning of 2009, means that a hearing impairment can be diagnosed as early as 4.3 months. In 2004, in comparison, this was only possible at the age of three. Affected children can thus receive remedial help with their hearing at a very young age, so that both hearing and speaking can be targeted and supported together. But how does this new situation affect children's speech development? And what approaches are most suited to this early remedial support? Since 2004, a research project directed by

Annette Leonhardt, Professor of education for the deaf and hearing-impaired, has been examining these issues.

In this first such research project in Germany, Annette Leonhardt and her team questioned staff at five audiology education advice centers and twelve sets of parents whose children were attending the early support program. At the same time they gave speech development tests to 15 children aged between eight months and four years who showed slight to severe hearing impairment. Most of the severely hearing-impaired children already had a so-called cochlea implant (CI), a hearing aid which electrically transmits sound to the auditory nerve, thus considerably improving hearing capacity. At the beginning of the project, the LMU team discovered that some children still had difficulties in understanding or articulating words and sentences. Six months later, however, almost all the children showed good to very good test results. In other words they performed better than a group of children from an earlier test who had not participated in the newborn screening program. Some of the latter showed a developmental delay of up to three years. The research results lead Annette Leonhardt to conclude "that the newborn screening and early support program enabled children to achieve speech development on a par with that of hearing children."

BETTER LINK-UP IS NEEDED BETWEEN ALL INVOLVED

The parents for the most part also expressed satisfaction with the progress of their children and the support offered. "Most are initially shocked by the diagnosis," explains Annette Leonhardt. "But the fact that the condition has been diagnosed early also gives them the sense that they are in a better position to help their children." Many parents say they deal very openly with their child's hearing impairment and that – primarily via the internet – they feel very well informed. They therefore say that they make their own decisions about remedial measures, and frequently decide to arrange for a CI implant at a very early stage. Overall most parents are very happy with the early support their children receive, and regard the staff at the early support center as important contacts. On the other hand many parents criticize the conduct of doctors following the hearing screening. Where hearing impairment is ascertained, the latter, they say, often give the diagnosis in an insensitive manner and afterwards have little time to answer questions. "Better link-up is needed here between all involved," stresses the LMU research director. "This would ensure that parents receive all the information they need and that the early support program can start immediately."

Early discovery of hearing impairment allows more time for supporting children's speech development – an aspect which staff at audiology education advice centers emphasize as particularly positive. It enables them to help the children learn in a more playful and relaxed manner. However this also means that they now have between ten and twenty percent more children to support, which represents new challenges. The daily schedule is also harder to organize, since the children's sleep-wake rhythm needs to be considered and planned in. "To begin with, the emphasis is more on advice and support for the parents," explains Annette Leonhardt. "For instance, they have to learn how to help and support their still very



A boy with a cochlea implant (left) playing with a boy with a hearing aid (right).
Source: LMU Munich

young child in daily life.” Despite a generally positive outcome, she regards the early support program as still leaving much room for improvement. For instance she says that many staff in the advice centers have no special training for infants and toddlers. “Furthermore we still lack new concepts and guidelines for supporting hearing-impaired infants,” she says. In order to inform the broad specialist community about such critical aspects, educationalist Annette Leonhardt and her colleagues regularly present

the results of the project at symposia to which doctors, teachers and speech therapists are invited, as well as the press and interested parents.

Yet even when the earliest phase of speech development runs smoothly, difficulties in speaking often arise when contact with other children becomes more frequent and in the learning situation goals need to be achieved – in kindergarten and school. The integration of learning-impaired children in these areas has preoccupied the LMU researchers since 1999. The improved educational situation for hearing-impaired children gave the impetus for a range of research projects, since many parents have in the meantime decided to send their children to ordinary kindergartens and schools. This is primarily because they hope that contact with hearing children will offer better language stimulus. For this reason Annette Leonhardt and her colleagues have decided to focus more on the situation of all involved: the hearing-impaired children, the parents, kindergarten and elementary teachers as well as staff at the mobile special education service (MSD) which helps oversee hearing-impaired children in schools. “To my knowledge there is no other project in Germany,” says Annette Leonhardt, “which covers the situation of hearing-impaired children from so many angles.” It is becoming clear that integration of hearing-impaired children in ordinary kindergartens is running well or very well in the large majority of cases. While many children – who were frequently not able to benefit from the newborn screening program – show a marked delay in speech development at the beginning, they can catch up to a large extent within a year, seemingly due to targeted support from speech therapists and special needs teachers, but also to the language stimulus in the kindergarten environment. Nursery teachers endeavor to focus on the special needs of hearing-impaired children by – for example – speaking very clearly. The children themselves also succeed in establishing contact with hearing children, and forming friendships over time. Nevertheless, as Annette Leonhardt stresses, integration could still be improved in a number of areas. For instance noise levels in classes are often too high, she says, and often too little account is taken of children with slight hearing impairment. “It is often assumed that they understand everything, but this is frequently not the case at high noise levels, or in large-group situations.” Even more than in kindergartens, attending a regular school often presents particular challenges for all involved. The lessons have to be organized differently when a hearing-

impaired child attends the class. Collaboration between pupils and staff from the mobile special education service therefore has to run without any hitches to ensure that the children concerned can receive the best possible support. These aspects, which are important for school success, have been scrutinized more closely by Annette Leonhardt and her colleagues. They asked teachers to assess the behavior of the hearing-impaired children according to various criteria. The aim was to ascertain any risks which would render class integration more difficult. While pupils were better integrated than pre-school children, it became apparent that a third of them were assessed as in some way conspicuous, particularly in relation to communication problems and attentiveness in lessons. Researchers identified noise levels in class as the chief problem, but the awareness of the teacher was also found to play a decisive role in successful integration. It is very important, for instance, for the teacher to turn toward the hearing-impaired child when speaking and to walk around as little as possible, explains Annette Leonhardt. "In addition, the lesson contents should be available in written form. And there should be a rule that only one person speaks at a time. All the other children would benefit from this as well." By no means all teachers participating in the study observed these principles. Many reported instead that they had received scarcely any information on hearing-impaired related needs. The individual teaching style of the teacher does however contribute decisively to how well a hearing-impaired child manages in class. "If the teacher uses a lot of visual materials, structures his lessons well and stimulates pupils, this also has a positive effect on the attention of hearing-impaired children. Yet many teachers seem to lack the necessary knowledge on how to best structure their teaching to support hearing-impaired children. "This is why, emphasizes the education professor, the theme of "integration of special needs pupils" is best dealt with already at the teacher training stage.

The work of the mobile special education service is also intended for offering information and support to teachers who work with hearing-impaired pupils. Most teachers regard this collaboration as helpful, but both parties complain that there is too little time available for face-to-face and telephone contact. "Better financial provision would be desirable here, to employ more MSD staff, and also provide better equipment for them – for example a work cell phone," says Annette Leonhardt. Overall, both parents and teachers consider that integration of hearing-impaired children in normal schools is running well to very well, even though a high level of personal commitment is required. Annette Leonhardt draws a similarly positive conclusion: "The majority of hearing-impaired children, are successfully attending ordinary kindergartens and schools," she says. But she believes that her work is by no means finished. There are prospective plans to study the project's various subject areas in longitudinal analyses and to include still even more children, parents and teachers.

Prof. Dr. Annette Leonhardt has held the LMU chair of education for the deaf and hearing-impaired since 1992. During this time she has studied the situation of hearing-impaired children in numerous research projects.

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