Chapter 1

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Ms. Roosen engaged in various teaching positions in the school environment and served for approximately 20 years as the principal of special needs school Vechtetalschule Nordhorn. In addition to developing educational programs for special needs schools over the course of many years she has engaged in research into commuting support for students with intellectual disabilities. She is the originator of the MogLi Project.

The initiative in Nordhorn City, Germany to provide commuting training on city buses

What is the MogLi Project?

The MogLi Project was launched in the Germany city of Nordhorn in 2007. "MogLi" is an abbreviation of the German phrase "Mobilität auf ganzer Linie," which means "Enabling people with disabilities to live independently through mobility." It was based on this concept that the program was developed to support students with intellectual disabilities by enabling them to use public transport to commute to school independently.

The key principle that forms the basis for the project is "inclusion," which is one of the principles of the United Nations Convention on the Rights of Persons with Disabilities. Prior to this principle becoming deep-rooted, the term "integration" was one that was often used in the sense that persons with disabilities, who have been discriminated against in the past, should be able to expect to be "integrated" with able-bodied persons. In contrast, the term "inclusion" refers to the fact that all people are equal and that from its very inception a society should be created that includes persons with disabilities. This is the concept that has come to be given priority in recent years and it is one that we consider to be extremely important.

Article 24 of the United Nations Convention on the Rights of Persons with Disabilities refers to "education." The article stipulates that States Parties recognize the right of persons with disabilities to education and that with a

view to realizing this right without discrimination and on the basis of equal opportunity, States Parties shall ensure an inclusive education system for all types of disability. In Germany this kind of inclusive education has already begun and today all children, including those with any kind of intellectual disability, are able to enter regular schools. It is said that in the near future it is likely that special needs schools will disappear entirely, and all schools will become regular schools.

Article 19 of the Convention also touches on the right of persons with disabilities to live independently and be included in the community. The MogLi Project, which aims to realize such independence from the perspective of mobility, therefore has a pioneering significance for the society of the future.

As to why this should be the case, the answer lies in the fact that although we all engage in various activities in different spaces, including school and work, and leisure and shopping, etc., the role of mobility in linking all these activities and spaces is an incredibly important factor, and one that can immediately improve and enrich the lives of persons with disabilities.

So, in order to improve mobility for persons with intellectual disabilities, what sort of actual targets do we need to set? In considering this question, we focused on the two points detailed below.

1) Improving mobility skills themselves
2) Aiming to achieve barrier-free mobility

The MogLi Project aims to realize these two targets simultaneously. In other words, we are engaged in simultaneous efforts to improve infrastructure (hard) aspects such as making the transport environment barrier-free, and also educational (soft) aspects that seek to improve the skills of persons with disabilities. Our project is characterized by our efforts in close cooperation with expert research institutions to achieve both of these aspects at a high level and create synergy between the two.

Figure 1 **Vechtetalschule**

There are four different areas in school, related to the age of the pupils and activities.
They are marked by different colors (red, blue, orange, green).

Schools and region participating in the project

The MogLi Project was conducted in the county of Grafschaft Bentheim in Germany. We launched the project at our special needs school, Vechtetalschule, which is located in Nordhorn, the main city of Grafschaft Bentheim[1]. There are 60 schools in the county and most students either commute to school by bus or are taken to school by their parents. There is also a public transportation network, but it is complex for children with disabilities to understand and they had been unable to use public transportation for their school commute. The primary form of public transportation is the regional bus, which runs twice every hour. There are other buses that run on demand and if you telephone to make a reservation one hour prior to boarding time, a taxi will come to your house to take you to the bus stop.

The city of Nordhorn where our school is located is in an area where a vehicle is essential for daily life, including shopping. There are four bus lines in the city, in addition to which there are school buses that serve each of the schools.

Our school is called the Vechtetalschule, which gets its name from the River Vechte that runs close by. Our school was built in 1990 and it serves children with various disabilities, including learning, mobility, communication and

behavioral disabilities. There are a total of 220 students in 30 classes in the school and more than 150 teachers and instructors are working there.

The main school where I am based is situated within the city of Nordhorn and there are ten further branch schools. The role of the main school is a significant one in that we provide advice to teachers and parents at the branch schools. The classes at the branch schools are also run with the cooperation of the main school.

With regard to the students who are participating in the MogLi Project, it is the case that not all students at our school participate in the project. One-third of the students have severe disabilities and regrettably these severely disabled students were not included in the project. Children with visual disabilities are also not included in the project. It was by establishing a set of criteria in this way that we defined which students would participate in the project as we advanced it forward.

Background to the birth of the MogLi project

I would like to explain a little about the background to the birth of the MogLi Project.

Back in 2004 I would often stand by the school gates, observing the situation as children came to school and left at the end of the day. Each day in front of the school gates there would be a mass of vehicles bringing children to school and the car park would also be full. I watched this scene every day and I started to think, "Why does each and every child have to be brought to school individually?"

Prior to the launch of the project all the students were taken to school from their home with door-to-door service. They were picked up every morning and taken to school and each day when classes finished they were each taken home individually. Even so, this service that took all the children directly to their homes was extremely inefficient, and also placed a burden on the children in view of the long commuting times. Transport expenses were also ballooning.

It was this situation that prompted me to ask the questions: Could the children be taught so that they could commute independently? Also, would it be possible to design such an education program?

Another question I asked myself was whether the commuting routes could be utilized as a platform for study. After all, study is not simply something that is exclusively conducted in a classroom environment. I realized that through a process of learning-by-doing, the students should be able to use their daily commute to equip themselves with communication skills and social manners.

I immediately conveyed my ideas to people in local government administration. I then busied myself seeking out research institutions as partners and after contacting several I was successful in finding partners that were compatible with the needs of the project. For technical aspects we partnered with Technical University of Munich (Technische Universität München) , and for education aspects with Giessen University (Justus-Liebig-Universität Gießen) and Technical University of Dortmund (Technische Universität Dortmund). For project formulation we received the help and cooperation of the government of Bentheim County, where our school is located. Furthermore, it was decided that operating funds would be provided by the Federal Ministry of Economics and Technology. Envisaging a three- to four-year project we were able to acquire operating funds of approximately 750,000 euro, and after a three-year preparation period we were finally able to launch the MogLi Project in 2007 [2].

After the project had begun, our first priority was to create a network of all the people involved. The main players were naturally the students, but unless all the other persons and organization concerned, including teachers, researchers, local government and bus operators, etc., worked in unison as good partners the project would not have worked successfully [3]. The parents of the children were also initially very concerned about the project and one of our important tasks was to provide education and psychological support to the parents too.

We advanced the project step by step in various aspects and we concentrated on efforts to clarify problems or challenges in each area and to resolve these one

Figure 2 **The Participants**

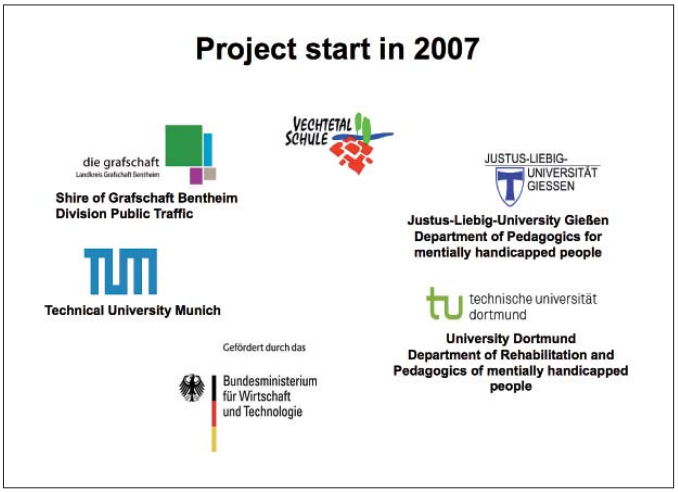
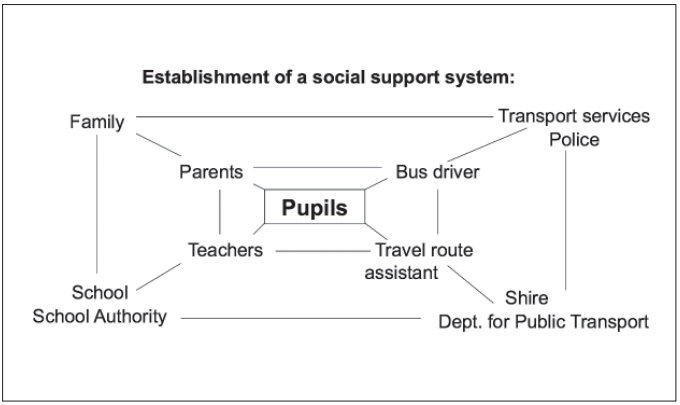


Figure 3 **Development of a network**



by one. It is thanks to this process of systemically seeking solutions to problems that we were able to generate relations of mutual trust and maintain a high degree of motivation among all the people concerned.

Approaches to the transport environment

Next, in terms of a technical approach to the transport environment, we conducted an analysis of the commuting routes to school. We examined what routes the children took and what kinds of transportation services it would be possible for them to use on such routes. In order to do this effectively we tracked the way to school for each individual pupil and examined each route.

The results of this analysis showed that for a number of students the existing transportation schedules did not fit well with their commuting times to school. We decided therefore to implement some measures, such as putting back the starting time for classes by 30 minutes, which would provide an environment in which it would be easier for students to travel by bus and increase the number of students who would be able to commute by bus. Ultimately a total of approximately 100 students at our school were able to participate in the MogLi Project.

Once it had been decided which bus lines each student would use, the next big challenge was to ensure safety for the students on their way from their homes to the bus stop. We wasted no time in engaging in a detailed survey of the routes from the students' homes to the bus stop and identifying traffic lights, crossings and other danger points along the way. If a certain point was deemed to be dangerous we made sure that an alternative safer diversionary route was found. With due care and attention, the commuting routes for each student were decided. In addition, the information we had collected from our research about the traffic signals, crossings and other danger points was all placed on an internet portal site, which was made accessible to anyone.

However, there are various other barriers on the commuting routes that students take to school. For example, for students with disabilities various transport environment aspects present barriers, such as a lack of lighting at bus stops and crossing signals that change too quickly. In addition, there are other more personal barriers, such as children being afraid to walk among large crowds of people or unable to read transport-related signage.

We created a list of all such issues and compiled them in a general catalogue. We also conducted interviews with other special needs schools, with the aim of identifying significant barriers and working to resolve these issues in prioritized order.

One representative example of the barriers faced is that children with disabilities find travel information displays and signage incredibly difficult to understand. These include the roadside signboards, bus route maps, displays inside buses and also on-board audio information.

All of these barriers are basically solvable, through such measures as using pictograms on bus route maps, using large lettering on sign boards and limiting on-board announcements to simple language. We worked to improve such environmental barriers [4].

Figure 4 **Recommendations for adequate passenger information**

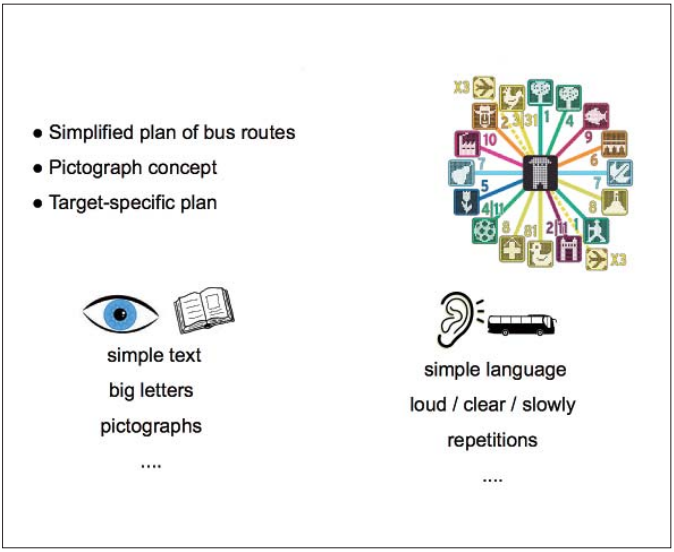
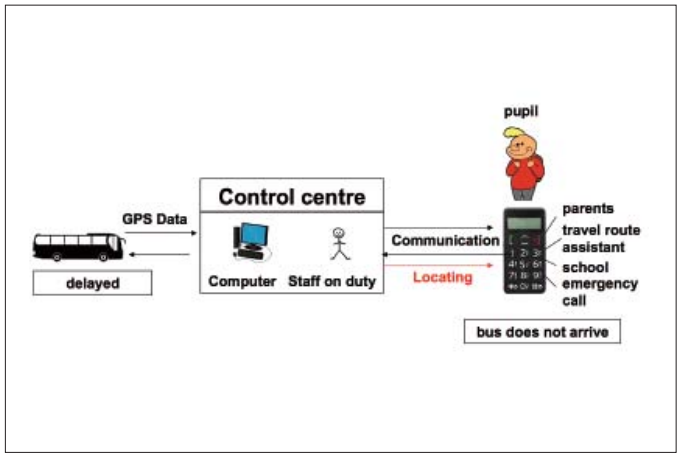


Figure 5 **Coping with unforeseen incidents**



In actual fact, such improvements are important not just for disabled persons, but also the elderly. There are many sign boards and other displays that are difficult for the elderly and the disabled to understand, and efforts to eliminate such barriers would also be highly beneficial from the perspective of responding to the needs of the aging society.

Response to unforeseen situations

Even after measures have been taken to deal with various barriers, there are still issues that remain outstanding. For example, when unforeseen situations occur, such as the bus being delayed or not coming at all, students can become panicked. We responded to such problems by establishing an information control center, where bus drivers can exchange information with center staff [5]. If the bus has not arrived or is delayed, the control center sends out information to students, who receive this information on a simple mobile phone. The mobile phone is set up so that by pressing "1" the students are connected to their parents, by pressing "2" they are connected to a travel route assistant, and by pressing "3" they are connected to school. By communicating directly with a person they are familiar with they are able to decide on their next course of action. Even if after pressing "1" the student cannot connect with

Figure 6 **Training of bus driver**

a parent, the phone is set up to automatically dial the next number, thus guaranteeing that the student will be able to talk with someone. By using the latest technology we have been able to respond to a certain degree to any unforeseen situations.

Educational approach

Next, I would like to explain about the educational approach we adopted in the MogLi Project.

Firstly, with regard to bus drivers, as they are required by law to undertake training four times a year, we implemented the training relating to our project within the framework of the regular training sessions. To date approximately 150 bus drivers have participated in the training [6].

The training is divided into five areas of learning. First is training on facilities for persons with disabilities, followed by information on the MogLi Project itself. Third is basic training to deepen understanding about intellectual disabilities and the characteristics of Down's syndrome and autism, for example. Fourth is the self-experience module, through which drivers engage in practical learning

about the MogLi Project in the working environment. Finally, the fifth area of learning concerns methods of responding to and interacting with persons with disabilities. Only the bus drivers who have received training in all five areas can actually transport the students.

Prior to launching the project we implemented a questionnaire, targeting the various people who would be involved in the project, including the bus drivers, students, parents, and teachers. It was evident from the questionnaire that all of the people involved were very highly motivated with regard to the project.

However, on the other hand, it was also a fact that all of the people involved were greatly concerned that the students may become involved in accidents once they started travelling independently.

In order to remove such concerns and enable students to learn how to deal with various problems it was necessary to develop a reliable educational program and implement it thoroughly. That was the particular focus for us in developing an educational approach.

With regard to education for the students, prior to the launch of the program we conducted a transport skills diagnostic test. This was a test to confirm in advance the response skills of the students in the transportation environment. The aim was to comprehensively test for recognition about traffic safety, as well as cognition and mobility skills relating to transportation and social interaction skills.

The test was conducted with students from the ages of eight to eighteen and used specialist equipment to assess the students visual, hearing, response and memory skills, all of which are essential elements of traffic-related behavior.

What we realized by implementing the test was that although all the students have various disabilities, their traffic-related behavioral skills were considerably higher than we had initially anticipated. Furthermore, the development of this test itself was a new experience for us and we noticed various areas where there

was room for improvement.

In this way, through a process of trial and error, we improved the diagnostic test and worked on developing an educational program based on the results that would further enhance the students' response skills in various areas.

The program that we developed is being implemented as part of the standard class curriculum. In addition, the educational know-how that we had developed and accumulated was compiled ultimately into a set of guidelines in a booklet. This booklet is used by teachers and education is provided that is suited to the needs of each student.

Educational program divided into stages

The educational program is divided into three stages. The first stage is classroom-based teaching. In this stage the students use cards, puzzles and blackboards to learn about how to read signs and understand traffic rules. Then the diagnostic test mentioned above is conducted to assess whether the student concerned can participate in the project. If a positive result is gained the student then moves on to the next stage. The second stage consists of practical learning and guidance, creating an environment in school or in the gymnasium that is similar to the real traffic environment. This is the stage at which students learn about actions as a pedestrian, when riding a bicycle and how to ride the bus. A diploma is awarded when each of these modules is completed. Students who have gained all diplomas then move onto the third stage, which consists of full-fledged training in the actual transport environment. Using a bus provided by the private bus company association, the students learn about how to get on and off the bus, how to behave when on the bus, and also about dangerous blind spots in the vicinity of the bus. This stage is taught by a member of the bus company association or a former bus driver. In addition, a mobility coach is also involved in the training to provide one-on-one guidance to students, accompanying them on their commuting route to ensure that they can act and behave appropriately in a real transport environment [7].

Figure 7 **Training on commuting to school using city buses**

In the final stages of the education program actual city buses are used to implement full-fledged training in the real transportation environment.

Learning how to wait in line at an actual bus stop and get on the bus.

The bus operator explaining the signs that are found on the bus.

Demonstration of what to do in case of a sudden stop. This demonstration is designed to show students the dangers of sudden stops, when an object placed in the aisle tumbles forward.

It is important for students to go through this staging and to gradually become accustomed to the transport environment. Once all stages have been completed the student finally starts riding the bus by him/herself and begins commuting to school independently.

Significance of the MogLi Project

The above is an overview of the MogLi Project. In conclusion I would like to share my ideas about the significance of the project.

Firstly, in terms of the significance of the program for students, one-third of those who participated in the program are now able to commute to school entirely independently. This is a wonderful outcome and it means that the project has had great significance for the students.

The students were previously very nervous about commuting alone to school. However, I believe that as they have grown and become able to commute independently they have also gained confidence. This confidence can be seen in their behavior other than the school commute, and I believe it has had a beneficial effect in various aspects, nurturing the buds of an independent mind in many students and enhancing their problem solving skills. Furthermore, as their communication skills have improved, the number of their friends has also increased and they are more able to actively use their free time. In that sense, one of the major outcomes of the project is that it has enriched the students' lives overall. I believe that their experiences will be of help to them once they head out into society after graduating from school.

The project also had significance from the perspective of "transportation." What can be pointed out first is that there is no longer a need for students to be taken individually to school, which has also resulted in considerable cost savings. According to our calculations, following the introduction of the MogLi Project, costs associated with commuting were reduced by almost 15%. We could use the funds that have been saved in this way to pay for the employment of personnel who are required by the project, or we could also put them to use as a source of funding for promoting a barrier-free transport community.

Furthermore, I believe that our project has had significance for society and the community overall. As the know-how we have accumulated through this project can be used at other schools and facilities, in the future I would like to widen the scope of the project to other communities.

One more point that I would like to emphasize is that the concept of this project is effective not only for people with disabilities, but also for the elderly. In both Germany and Japan the aging of society is continuing to advance and it is anticipated that public transport will increasingly be used by the elderly generation. I believe that the concepts and accumulated know-how of the MogLi Project will be useful when considering the use of public transport by the elderly.

In truth, I believe that the single largest merit of the MogLi Project is it potential usefulness to the aging society. If projects like MogLi were to be implemented in other countries and regions around the world, I expect that it will be possible to create social infrastructure that will respond to the realities of an aging society.