

The Solution of Transportation Problems of Those Having Mental Disabilities and Their Individual Participation to the Social Life

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Abstract

This study may be considered under two main headings, the education-training and related technical applications. Although there will be a need for further professional support for the educational section, the main structure of this study was conducted by associating the technical designs to the educational stages in order to propose the related educational program.

In the present case, the individuals with mental disabilities are not allowed to join the traffic system alone by their families. This situation negatively affects the daily life of both the person and his/her family causing the individuals not being effectively integrated into the society. The transportation problems of mentally disabled students living in the city of Sakarya were investigated through the parent surveys conducted at the related schools to propose the traffic related adjustments and develop educational process.

Keywords: Traffic safety, mentally disabled people, social integration

1. Introduction

The mental disability is a term and generally used for those people whose IQ test results are lower than 80.

Mental disability occurs before, during and after childbirth due to various reasons, and indicates itself in the developmental period through the deficits in adaptive behaviour in addition to the perception and general mental functions such as memory and reasoning.

Mentally disabled individuals develop more slowly compare to their peers in terms of personal care, environmental compliance, language, communication and sensory motor skills. That`s why, individuals are grouped according to their status and their training and education are subject to their present IQ levels.

The following table gives the basic information about this concept.

Psychological Classification		Educational Classification	
	IQ Score		
Low	55–70	Educable	50–75
Mild-Moderate	40–55	Teachable	25–50
Severe	25–40	Extremely Difficult	0–25
Extremely Severe	0–25		

Table 1. The relationship between Intelligence Level and Education

There are also training opportunities for individuals with severe and very severe psychological diagnosis. But since many of them have physical disabilities too, they have to spend their daily lives dependent on either a member of their families or caregivers. For this reason, people with severe or very severe intellectual disability experiences difficulties to participate in the social life as an individual.

The large proportion of mentally handicapped people is constituted by mild and moderate mentally disabled people who can be trained and educated. This group is a major targeted group and they also have the right of education just like any other individuals in the society. It should be mentioned that there are some special education schools run by Ministry of Turkish National Education to provide special facilities for these individuals. However, these schools do not accept those with IQ level below 50. This limitation results in a quite high number of people not being able to get education that they deserve. The studies reveal the fact that the schools administrated by Ministry of Turkish National Education can provide education only for % 46 of those who are mentally disabled. [1]

2. The Survey

Some detailed questions were asked to the companions of these individuals through the Parents Survey about the problems encountered. No personal information of either the patients or the parents is required at this survey rather the main point was to get their opinions and evaluations. The resulting general findings and appraisal of the questionnaire are indicated by the graphics through this article.

According to the survey, there are certain reasons for these individuals for avoiding pedestrian crossings, public transportation and the general traffic environment involving both human and vehicle movement. These can be categorised under four main groups;

- a) Their own physical disabilities / barriers
- b) The problems caused by absence of mind and carelessness
- c) Insensitivity of the society / people
- d) Lack of education

Many of these, however, can be solved by training-aided design and systematic safe systems may be developed for these needy people. This paper presents some design approach to give rise to the formation of these issues by considering the physical conditions of these individuals along with the problems they experience in the existing traffic.

2.1. Physical Disability Problems

When the survey data is analysed, it can be seen that the percentage of the people having severe physical disabilities is about 7 %. On the other hand, those having moderate disabilities are about 26 %. The following table illustrates the cross-combination of mental and physical disabilities based on the data obtained through the survey.

Physical Disability \ Mental Disability	Low	Mild	Severe
Low	15 <u>71%</u>	1	0
Mild	4	8 <u>57%</u>	0
Severe	2	5	4 <u>100%</u>

Table 2. The Combination of Physical and Mental Disabilities

This table indicates the fact that 71 % of individuals with low physical disability is at low mental disability level. The general structure of the table states the parallel structure of the physical and mental problems. Accordingly, it would be quite reasonable to conclude that the individuals with mental disabilities might have some physical problems to some degree, too. This fact guided us that the designs to be conducted for the mentally disabled people must take into account of the fact that they might likely have some physical limitations.

82 % of the parents of the children with severe mental disability stated their attitudes as negative to the question of would you allow your child to move freely around at a traffic environment by himself/herself. This clearly means that the systems to be developed for these people should consider in a way that they can move with their parents or carers. These mentioned individuals prefer to have mobility in wheelchair even if they have low physical disabilities.

Although stated in theory, the application shortages experienced as not giving way in the crosswalks,, threaten the environment by exceeding the speed limits must be overcome and the availability of the ramps at sidewalks, theatres, cinemas and hospital entrances must be increased in applications wherever any facility is required.

Individuals with relatively low or mild mental problems generally do not have severe physical limitations. Hence, the targeted groups may involve a large number of people. The difficulties faced by these individuals because of a physical disability can be listed as follows;

- The fear of walking on the sidewalk as a result of speedy traffic around and experienced lack of time for crossing the road
- The fear of crashing with a vehicle having sudden and dangerous manoeuvres due to not being able to react fast enough
- The high and narrow public transportation vehicles
- The lack of available comfortable seats at public transportation vehicles

2.2. The Problems Caused by Absence of Mind and Carelessness

The parents who do not think it to be safe that their children with low mental disability can individually move in the traffic state the reasons for their opinions as their children having lack of concentration and suffering from carelessness. The parents of children with moderate and severe mental disabilities do not provide such a result.

Parents have come across the following problems due to the lack of concentration and attention of their children.

- He/she may suddenly stop while passing across because of absence of mind
- He/she may not recognise the vehicle coming fast towards him/her
- He/she may have difficulty in seeing and distinguishing the traffic signs.
- He/she may experience some delays to realise or perceive the approaching public transportation vehicles and not acting properly as a result

The colours and shapes to be used for road marking systems to be developed for these people must attract their attention. The studies revealed the fact that while the most attractive colour pair for the girls is green-orange, it is blue-green for the boys. [2]

2.3. Insensitivity of the Society / People

The insensitivity of the society is a common problem for both the mentally and physically retarded individuals and their families. This issue involves insulting looks of the people, the carefree attitude of the public transportation drivers, the disobedience of the traffic rules by the private car users, in other words, the intolerant and inconsiderate attitude of the general public.

As far as we understand from questionnaires filled out by parents, the unconcerned behaviour of the public transportation drivers is a severe problem encountered frequently. Moving the vehicle before the children take their safe positions at their seats, not allowing the wheelchair users to get on the vehicle during peak hours, not helping them when getting on or off the vehicle are some of the points to be mentioned. Provision of the awareness of the drivers of public transportation is an important consideration in this regard. Local authorities may arrange some seminars to create and raise this awareness, increase the controls during working hours, punish those who do not show required attention or award a prize for those having exemplary behaviour. Such methods can be employed to achieve the increased awareness and tolerance.

2.4 Lack of Education

People with intellectual disabilities are divided into groups as stated in the general definitions section above. When the physical disabilities are investigated for those groups who can be trained and educable, it can be seen that the physical disabilities are low at 70 % and mild at 30 %. The issues caused by these physical disabilities can be overcome, however, through some effective arrangements.

The traffic education program received by mentally disabled people in the current system is given by the training packages provided by Ministry of Turkish National Education. It can be argued that some of these packages are insufficient and some subjects are not suitable for the educational purposes in case for mentally handicapped people. [3] The only official organisations advising on these matters in Turkey are universities. These advices and proposed systems can be improved by parents and training teachers by adding the special traffic related arrangements deemed to be beneficial by them.

When looked the general mentally disabled people, it can be argued that they experience much trouble in the learning and training stage.[4] In other words, they generally suffer receiving information, storing it in the memory or transferring it to the other parts. Since these people have difficulty in perceiving and distinguishing the visual warnings, they also experience difficulties in learning colours, geometric shapes and numbers. Their perceptions, comprehensions, and

responses are simple and limited. Their interest periods and short-term motivations are also short in time. Therefore, they need to be encouraged and monitored continuously. Due to weakness of their memories, they are inclined to forget the things that they have seen or heard. Therefore, issues are often required to be repeated.

3. Problems and Proposed Solutions.

The statements of participants of the survey point out that the children are not quite clear about the meaning of the traffic lights and since they do not perceive the real risk and danger of crossing at pedestrian crossings they can jump right in the middle of the road. Some parents also stated that their children do not feel safe at traffic environment simply because of the perceived high speed vehicles.

Their mental disabilities may cause to lose their way, disorient their directions and confuse the time to move from one point to other.[5] In addition, these handicapped people may not recognise the approaching buses while waiting at the bus stop, which means that they may miss to get on the buses for their travel.

When the traffic management systems are arranged according to these problems, it should also be mentioned that there are some strong sides of these people to be taken into consideration. Above all, these individuals have better understanding on specific concepts and events. Although their academic skills are at lower level than their peers, these individuals may be much more enthusiastic about the things going on around them. They may eagerly comprehend the topics and subjects within their interest areas.

The power of imagination that they have is more outstanding than the other people. They may think by using pictures rather than words and able to solve problems with intuitive way. The new education system and traffic regulations may be formed by considering these technical and training phases separately thanks to these strong sides that the mentally retarded people have.

The most important recommendation that we can suggest at this paper is a prefabricate traffic and play park called “ *Barrier-free Parking* ”. This is used to measure the personal development and to teach the traffic system. The main function of this park is to provide a virtual environment to mentally handicapped people to experience the real life traffic conditions. The equipments available at the park have to be used by skilled and professional staff and all the necessary precautions must be taken at the ultimate level.

The crowds of people are constituted in the park in order to simulate the behaviour of the people in public transportation. Furthermore, all the required education is provided right in the park to obtain the necessary improvements. Some continuously available observers in the park are the

educators to uplift the group of people. This will arise the possibility of obtaining real data.

The new traffic signs developed in theory by expert trainers are described and taught in schools, and then this theoretical information will be put into practice through the traffic park to embody the practical aspect of the traffic education.

Pedestrian crossings, bus stops, sidewalks and traffic lights will be reorganized; city centres, historic sites, and important buildings are indicated by special symbols and these symbols will be given to disabled people in the form of guide booklets.

Mentally retarded people are thought to have the following educational outcomes through the Barrier – Free Parking system.

- The meaning of traffic lights and the movement of traffic
- The use of the sidewalks and crosswalks.
- The use of button operated traffic lights and, card-operated bus stops
- Ways and methods to be followed not to get lost while travelling

Once those individuals who gained competence through the things learned at Barrier-Free Parking educational process they are given a chance to get integrated into real life under the supervision of their school teachers so that they will have the safety knowledge and behaviour pattern to get involved in the traffic and the social life by themselves. Participation in the social life for individuals with mental handicaps may be possible with the development of social skills. These individuals must have the social skills of how to behave in different environments just like the other individuals do. If these people can use the public transportation buses and perform the social activities such as shopping in a safe and not disturbing manner, then they can be regarded as socially competence person.

If the main purpose is to let these individuals live in their community without encountering any sort of difficulties, general problems should initially be identified from a wide perspective and spectrum, then local experiences should be coordinated and combined to obtain the related advanced educational approaches and practical applications.

4. Survey Results

The data obtained from the surveys are presented at this part of the study as follows.

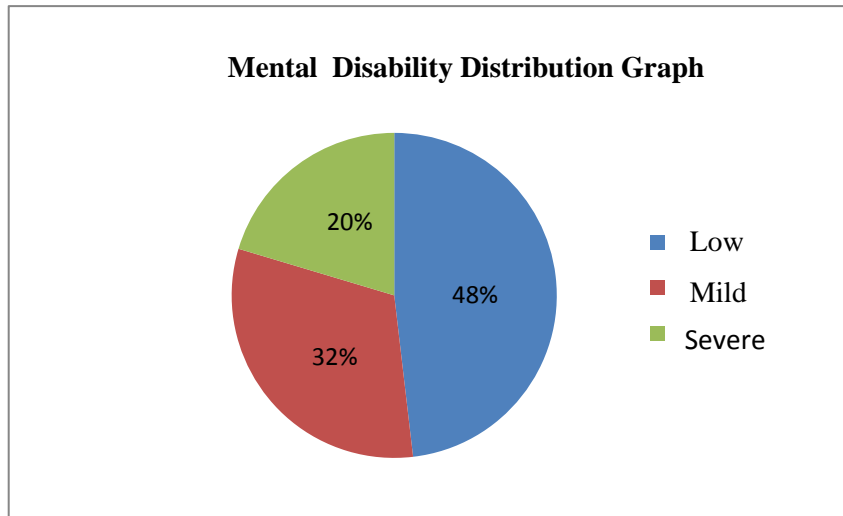


Figure 1. Mental Disability Distribution Graph

Twenty six (26), seventeen (17) and eleven (11) of the students from fifty four (54) mentally disabled students participated in the the survey are low, mild and severely handicapped students, respectively. The physical disability distribution of the same group is obtained as 15 not having any sort of handicap, 21 with low handicap, 14 with mild disability and 4 with severe physical incapacity. The figure below illustrates these figures.

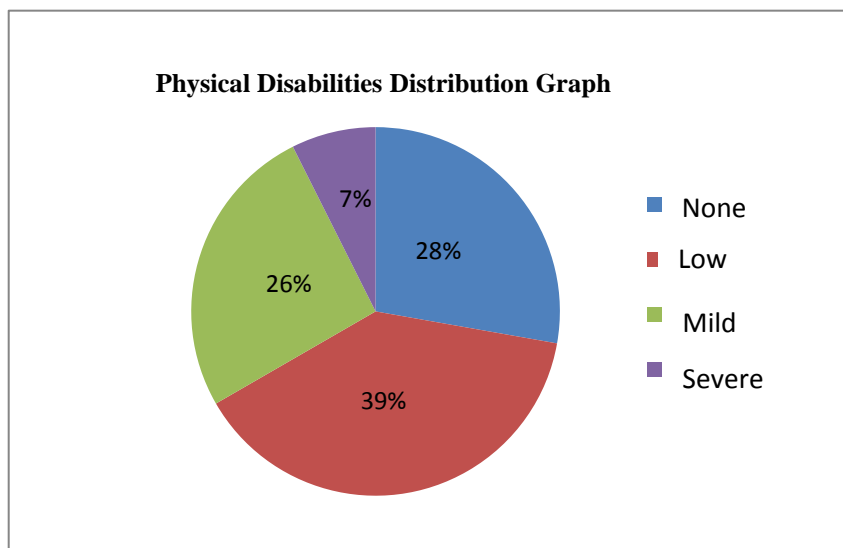


Figure 2. Physical Disabilities Distribution Graph

Forty-five participants (82 %) out of fifty-five state that it is a major problem that their children cannot get involved in social life as an individual. The reason for not seeing it as a major problem for the remaining 18 % is basically related to the strong emotional ties with their children and the insecurity that they feel for them if they take part in the daily social life. These participants strongly believe that social life is far from an acceptable atmosphere where their children can act independently. The following figure illustrates the way how the parents feel their children should involve in everyday life.

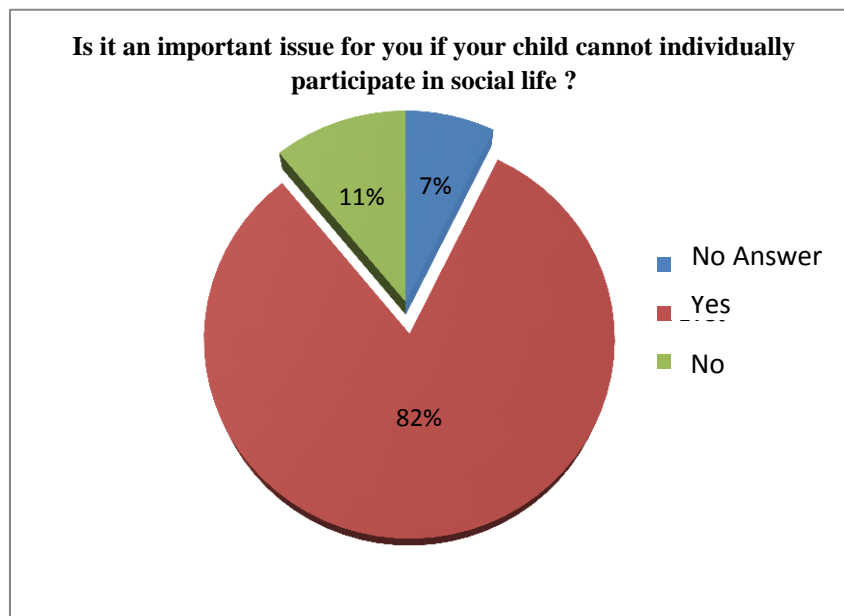


Figure 3. The Issue of Individual Participation in Social Life

The majority of the people (54 %) agreed that they can allow their mentally disabled children to act individually at traffic related areas after having the educational and training course. This question was asked to the parents after explaining innovative structure of the educational program that is offered to their children. The figure strongly supports the possible expected positive effect of the program. The parents who do not allow their children to behave freely and individually in traffic seems to be relatively high (44 %). This clearly emphasises the fact that the contents of the program must be explained in detail for those parents so that their concerns and worries can be resolved. The following figure describe the general attitudes of the parents towards the freedom of their children in traffic.

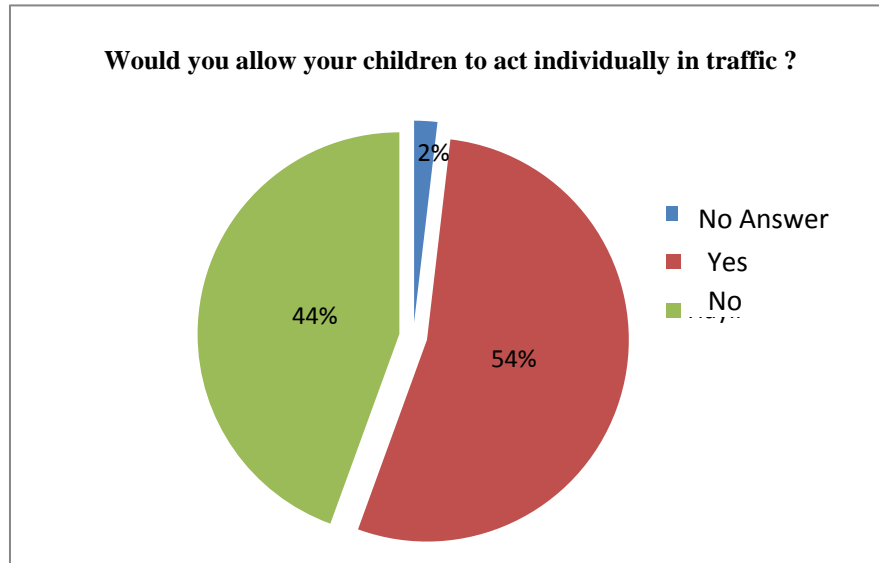


Figure 4. The Freedom of Individual Behaviour in Traffic

5. Conclusions and Recommendations

The mentally disabled people constitute the largest minority group in the world. The average proportion of individuals with an IQ level below 80 is 2 %. This means that there are around 1,400.00 people in this group in Turkey. The 65 % of these people, around 910.000, is under 30 years of age and can be educated. The low and mild disability group share a portion of 49 %. When considering even for the lowest rate in our country, the number of educable mentally retarded is 138,000 people. The initial investment cost for building such a *Barrier-Free Parking* for this amount of people surely is worthy and socially meaningful. The facilities provided for these people to let them participate in the social life is an important socially-based project and compatible with the general approach adopted by developed countries with this regard.

- *Devices to be produced*
 - A new light indicator at the traffic lights. In the selection of the colour, blue or orange is preferable
 - A pre-warning system to let the public transportation bus drivers know that there is a mentally disabled person or people waiting at the coming bus station. The system is based on a special type of card carrying information about the personal information of the card holder and there will be a very simple communication system between the card and the driver.

- The person will need reminder signs and guidance when walking on pedestrian crossings to let him remember the education that he or she received during the training and educational program. These signs can be integrated into the crosswalk lines or traffic signs.
- The lifts or overpasses which mentally disabled individuals have limited opportunity to use in real life can be incorporated in the park and continuously repeated trainings might be applied to teach how to use these equipments.
- The embossed yellow lines at metro and tram services can be used. By assuming that there is no need to change the yellow colour of those lines, some colourful warning signs can be integrated in the system to guide the mentally disabled people. These warning signs can even guide them to the travel boards exclusively available for these types of people.
- Where there are no pedestrian crossings due the relatively less amount of vehicular traffic, the exemplary applications can be put into practice many times during the educational stages so that those disabled people can get the attitude and behaviour pattern to cross the road safely.

References

1. *Engelli Hakları İnceleme Raporu*, Türkiye Büyük Millet Meclisi İnsan Hakları İnceleme Komisyonu, 24. Dönem, 3. Yasama Yılı, 2013
2. *A Helpful Guide in Training of a Mentally Retarded Child*, Virginia State Department of Health Bureau of Crippled Children, National Association For Retarded Children, New York,
3. D., Shane and Cerley, J. W. Carley, *The Transportation Problems of the Mentally Retarded*, Research Report 17, The University of Texas in Austin
4. Camplone, J.C, Nitsch, K., Bray, N., and Brown, A.L, *Improving Memory Skills In Mentally Retarded Children: Empirical Research And Strategies for Intervention*, Center for the Study of Reading, University Of Illinois At Urbana-Champaign, 1980
5. National Council on Disability, *The Current State of Transportation for People with Disabilities in the United States*, June 13, 2005