The Transportation Problems of the Mentally Retarded

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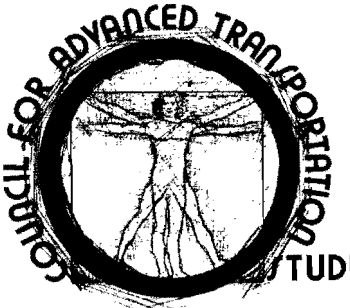

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THE TRANSPORTATION PROBLEMS OF THE MENTALLY RETARDED

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ABSTRACT

Present Mental Health-Mental Retardation Programs de-emphasize institutional containment and attempt to place moderately and mildly retarded individuals in the normal environment on a self-supportive basis. To accomplish this they need to acquire a knowledge of the various transportation modes available to them in the community. This study identifies the travel problems experienced by the educable retarded and the instruction necessary for improving their mobility and environmental awareness.

Inadequate travel training and institutional isolation affects the retarded individuals'awareness of job, shopping and recreational opportunities. Institutional priorities should be re-evaluated and more emphasis placed on travel training programs.

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CHAPTER 1. INTRODUCTION

The trend in urban transportation is expanding from the mere question of efficient mobility to include social equity considerations concerning the mobility of the elderly, the mentally retarded and the physically and sensory impaired. Only when their travel requirements are known and their behavior in a physical setting understood will it be possible to design transportation systems that ameliorate their travel difficulties. Problems experienced by the mentally retarded have only recently been recognized. Previously, mentally retarded individuals in state schools were sheltered from society and required little travel knowledge. Until lately, the Victorian view of isolating the retarded from normal society still pervaded our thinking. Today there is a concerted effort by state schools to place those retarded persons considered capable of adjustment in the normal environment. This directive necessitates that they acquire a knowledge of the various transportation systems available to them in the community. Training in the usage of these systems and their appendages - e.g., traffic lights and pedestrian walks - is a necessary prerequisite to their full entry into society.

Instruction in travel awareness is profitable in that it relieves the institution of the responsibility and costs of moving the individual between his residence, job, shopping and recreational activities and develops

greater self-reliance and confidence in the person. The present federal, state and local Mental Health-Mental Retardation programs deemphasize institutional containment and attempt to place as many moderately and mildly retarded residents in private apartment complexes scattered throughout a city, and to find them gainful employment. When placed in the community, carless retarded must rely upon available public transportation, taxis, relatives, friends or the institution for their transportation. Many retarded persons capable of using public transit are unable to do so because they do not know how.

This paper incorporates the travel problems elicited from mentally retarded individuals and formulates possible solutions. It specifically examines the difficulties encountered by borderline and mildly retarded residents of the Austin State School Annex Campus, Austin, Texas in their everyday utilization of predominantly, intra-city public and private transportation. The study: (1) identifies the mobility problems experienced by the mentally retarded; (2) develops a basic curriculum guide for the teaching of their travel and transportation awareness; and (3) suggests changes in public and private transit usage that would alleviate some of the difficulties.

Literature Review

The travel training of the mentally retarded has been neglected, and the literature relevant to the improvement and development of these individuals is devoid of substantial reference to this subject. Much work

has been done to determine how normal individuals perceive their environment; however, works related to retarded persons are relatively few. Studies by Carol Waldvogel and H. F. Andrews found age to be an important factor in determining the extent of the retarded persons' urban knowledge. The 1972 report by the President's Committee on Mental Retardation acknowledges that the primary cause for the borderline and mildly retarded persons' inability to travel independently is not cognitative deficiency but the inadequate training they receive while resident in public institutions. The report advocates the implementation of independent travel training programs, pointing out that institutions which have initiated such programs have met with considerable success. Andrew Kubat carried out a program in Utah in which retarded persons were taught to complete a bus trip, and other successful programs have been reported by Fredrick Nalven and Adela Oliver and by Jack Tobias and Jack Gorelick.

Dependent travel is necessary when physical or intellectual impairments prevents the individual from moving independently or where public transportation is inadequate. It is not necessary if the retarded person is capable of using available transit. Unfortunately in dependent travel, the mode selected by the institution is constrained by vehicle operating costs (the purchase, lease, or contract of travel services) institutional staff time consumed, and the amount and consistency of the travel demand. Costs can be defrayed by a transportation cost

allotment similar to that offered by the State of Texas which allocates $150 per pupil per year to provide transportation for those unable to utilize regular transportation and therefore unable to attend various activities.

Where agencies or organizations have tried to meet the needs of the educable retarded, it has often meant the diversion of trained personnel from their main activity (teaching, physical therapy) to that of trying to provide transportation services. When transportation services are provided on the scale of a minibus system the cost per mile or cost per vehicle mile are unusually high due to the relatively low utilization of the equipment. Agencies do not achieve economies of scale in such operations as maintenance and equipment use. The paperwork associated with an agency's transportation logistics is also time consuming and costly. Further, people eligible for transportation services do not receive them because they are inadequate.

Unfortunately, dependent institutionalized transportation does little to encourage the individual to observe his environment. Because retarded persons capable of re-establishment in society have not had environmental experience their social integration is thwarted and they develop an overwhelming sense of insecurity. Unless they are carefully instructed to move about in normal society their unclear concept of distance, direction and time is intensified. If they are to participate more freely in society their environmental expe-

rience must be increased.

Granting an automobile driver's license to retarded persons is the most controversial issue associated with independent travel. Their ability to conduct themselves proficiently when driving a car is the subject of much debate. Robert Egan suggests this method is the least practicable for the provision of independent travel. Comparing the driving records of eighteen retarded persons and eighteen regular class students, Egan found the former experienced difficulties in judging the distance between automobiles and in their reactions to the normal exigencies of automobile travel. They averaged two accidents for every one accident incurred by regular students. However, Francis Kenel and Emily Krueger in their study found the retarded persons to be significantly better drivers than many normals with higher intelligence levels. E. Match and A. W. Miller also contend that those mentally retarded capable of driving be allowed to do so, especially in areas where public transportation is either lacking or limited. Their twelve respondents drove from 3,000 to 30,000 miles per year and reported no serious accidents or traffic violations.

J. H. Kubaiko and C. J. Kokaska in their report do not question the ability of some of the mentally retarded to drive, but rather the quality of instruction provided for them. They assert that present training curriculums are watered down versions of those given to regular students. They advocate innovation in the teaching approach and suggest that driving tests be given verbally, which is reasonable

in that many retarded persons are unable to read. They could be taught to recognize road signs and symbols in much the same way young children are instructed to recognize characters in reading classes. With verbal test questions delivered in terms the person can understand, it would then be more certain that failure to pass the test resulted from inadequate transportation knowledge rather than an inability to read.

The attitudes fostered in the retarded person through independent travel are also very important. Since these individuals often feel inadequate, being permitted to drive makes them feel more a part of society and affects their personality and outlook on life. Consequently, it was proposed that training programs should be positive in nature so that a confident self-image is produced. Herman F. Dick also agrees that they should be permitted to learn to drive and that intellectual and physical deficiencies can be partly resolved through improved training and automobile modification. On the whole the few studies that have addressed the debatable issue as to whether they can become safe, capable drivers support the granting of driving privileges to them if they meet the required standards of driving proficiency. This can only be achieved through improved methods of transportation instruction.

Nature of the Data

Those supervisory staff and attendant personnel of the Austin State School-Annex Campus who were most likely to furnish relevant

information concerning the transportation problems experienced by the mentally retarded were interviewed as were the employers of those retarded persons working both on and off campus. Visits were made to several public service facilities, such as the Texas Department of Public Safety, the Texas Highway Department, and the Austin Parks and Recreation Department to obtain information pertinent to the study. Further information was obtained by letter of inquiry from several national and international agencies such as the National Safety Council; the National Association for Retarded Citizens; the Ministry of Labor and Social Affairs, Denmark; the British Police Road Safety Department, London; and the Swedish Institute, Sweden.

Based upon the information obtained from the literature and these inquiries, a preliminary questionnaire was prepared and pre-tested on 15 randomly selected mentally retarded individuals. Several changes were made, and the final questionnaire was administered at the Annex Campus during August 1974 through in-depth interviews with the residents. The questions, which were delivered orally to the respondents, were not given directly as outlined in the questionnaire, but were rephrased to suit each individual case in order to ensure that the respondent fully understood the intent of the question. Due to the special nature of the interviewer's task, knowledgeable professionals in the training of the mentally retarded administered the interviews. They were conducted in pleasant surroundings, were private, and involved only the

interviewer and interviewee. (Appendix 1)

The 70 retarded persons interviewed - 37 females and 33 males - were randomly selected from the computer listings of those 108 Annex residents who fell within the Austin State Schools' definition of borderline or mildly retarded. (See Table 1). These Educable Mentally Retarded (EMR's) males and females are in their early twenties and are free from significant physical and sensory impairments. These persons are employed by private businesses in the community and vocational training programs. The EMR's are characterized by: (1) a minimum educability in reading, writing, spelling, and arithmetic; (2) a capacity for adjustment to independence in the community; and (3) a minimum occupational adequacy for partial or total self-support.

The institution fosters those behaviors that enhances a resident's ability to deal with the demands of his social and physical environment. It elicits and maintains behavior that is culturally normative and maximizes the resident's social, vocational, and self-supportive skills. The integration of the trainee into the community on a self-supportive basis is a primary goal of the institution. Supervisors at every level are aware of the growing need for a well coordinated travel training program and are eager to operationalize one that will accelerate the normalization of their residents. They are aware that if they do not concentrate effort in this direction, the resident will be ill-prepared for entry into the community.

Levels of Measured Intelligence

TABLE 1

	Level	Arthur[1]	S-B[2]	WISC-WAIS[3]
Borderline	0 (90)	67-83	68-83	70-84
Mild	I	50-66	52-67	55-69
Moderate	II	33-49	36-51	40-54
Severe	III	16-32	20-35	
Profound	IV	Below 16	Below 20	

Source: Austin State School-Standardized Intelligence Tests

1. Arthur Point Scale; 2. Stanford-Binet; 3. Wechsler Intelligence Scale for Children and Wechsler Adult Intelligence Scale. Measured intelligence is a source of considerable debate and variations occur among intelligence tests and among the institutions that apply them.

CHAPTER II: THE MOBILITY PROBLEMS OF THE EDUCABLE MENTALLY RETARDED

1. Environmental Perception

The residents satisfy the majority of their social needs within the narrow confines of their immediate neighborhood. A manifestation of this restriction is shown in their spatially confined travel behavior. Their unsupervised daily walking and bus paths for jobs and recreational activities were plotted separately and concentric mile bands superimposed over the patterns. For the recreation pattern some 90 percent of the residents had a mobility range of only 3/4 to 1 1/2 miles; whereas some 75 percent had an average mobility of one to three miles for jobs. Little variation occurred by sex, age or mode.

Although several parks, theatres and eating facilities are located within a two mile walking distance of the school, they were found to be rarely utilized and the residents were either unaware of their existence or did not know how to locate them. The majority of the respondents expressed a desire to travel to these locations. Since the EMR's come predominantly from working class neighborhoods, where intense localism, both spatial and social, exists, they feel safe within a sheltered setting and possess a "fear syndrome" about unknown areas. In order to remedy this syndrome a positive supportive experience of other areas in the city is necessary.

To assess whether the individuals had some mental map of the city, they were asked whether they recognized landscape features while being shown 36 slides of images along the most frequently travelled bus route. The subjects recognized a variety of landmarks up to a mile from the Annex but failed to recognize others until they arrived at the Downtown-University complex some five miles away.

The study reveals that the majority of the residents do not possess an awareness of their immediate neighborhood or other city areas which is an impediment to successful independent commuting. Inadequate travel training and institutional isolation affects their ability to receive, organize and use mobility information and to search out and locate accessible jobs and recreational facilities. Consequently, the utility of opportunities close by are often unknown to them. Even if known, lack of reinforcement about these areas and the inefficient dissemination of travel information by institutional sources results in their failure to take advantage of these opportunities.

II. Pedestrian Mobility

Eighty-four percent of the respondents know how to cross the street safely and the rules regarding walking on a street with no sidewalks. The residents acquire pedestrian safety measures through repetitive experience. Forty percent of the residents stated that the lack

of sidewalks did not deter them from walking off-campus, but stated a preference for them. The remainder indicated that the lack of sidewalks inhibited the variety of their off-campus walking trips primarily because of their fear of walking on heavily trafficked streets.

A disturbing finding is that off-campus walking by sixty-seven percent of the residents flows only in one direction. Although there are at least ten parks and other recreational areas within walking distance of the campus they were not aware of these facilities. Walking off-campus appeared to be self-restricted to one shopping area some three-quarters of a mile from the school. The construction of sidewalks in the general area of the institution might increase the frequency and variety of off-campus trips.

There was little difference among the preferences expressed for walking or riding the bus for off-campus work trips. The reason generally given for the walking preference was either inadequate funds (i.e., the resident preferred to save money by walking) or an inability to use the bus system. Some employers stated that residents were occasionally late because of the distance involved in walking. One resident stated that he would prefer to use the bus system, but that in four years at the campus he had taken the bus but once.

Some seventeen percent of the males hitchhike for recreation and shopping and four percent for work. The male respondents who hitchhiked to work said they generally did so only in inclement weather.

Those hitchhiking for shopping and recreational purposes on Sunday do so because there is no Sunday bus service. The females expressed considerable fear regarding hitchhiking and decline rides when offered.

III. Bicycle Transportation

The residents' ability and willingness to ride a bicycle as a major means of transportation was determined as was their willingness to make a financial investment in a bike. Some sixty percent were taught how to ride a bike at home; the majority being males. Males were much more prepared than females to use the bicycle for work, recreation, and shopping trips. Fourteen percent expressed no desire to ride a bicycle because of the fear of an accident. Not knowing how to ride a bike and the fear of riding it in traffic were additional reasons. They were aware of special bicycle lanes and some stated they would ride off-campus if they were introduced in their area. The respondents were aware it cost less to ride a bicycle than a bus or taxi and stipulated they would buy a bike if they had the money and were allowed to do so.

IV. Bus Transportation

One-third of all the residents interviewed never used a city bus, even though their average length of stay at the institution is eight years. Of the remainder 11 percent have used the bus once. On questions per-

taining to the bus system, the residents are aware of the location of the nearest bus stop, on how to indicate to the driver they had reached their destination, and the appropriate social behavior and the consequences of inappropriate behavior while riding the bus.

One-third of the respondents were knowledgeable of the variation in costs of a bus ride during peak and off-peak hours and whether a transfer ticket is included in the cost of the bus ticket or costs more. Of those knowledgeable, the majority approved of the reduced fare for off-peak travel. Only four percent answered correctly when questioned as to the hour limit on a transfer ticket and understood the bus schedule of the bus that stops at the institution. No one knew the route name and number of the one bus the residents most frequently take from the institution and that a transfer was necessary to reach downtown.

Some 50 percent had no means of personal identification, (I.D., etc.) but ninety-four percent knew how to secure assistance by telephone when lost. None of the residents possessed a trip destination card, but 95 percent stated that a card would be helpful if they became lost or forgot their destination. Possession of this card would also circumvent the necessity of contacting specific assistance by aiding the residents to secure information from other individuals.

It is often difficult for normals to determine where they are on the bus route and which stop they are approaching. This problem is

accentuated for these retarded persons who experience problems in reading road signs and for some who daydream or who are not actively aware of their environment. These individuals would be aided if the bus driver called out the street name at major stops as is common in other cities. This would be a selective process since in Austin a bus will stop at any corner along its route if a person is waiting there.

Not knowing which bus to board or transfer to is a problem common to the retarded persons. At busy points in the city several buses come and go on short headways. Asking a stranger for directions is more of a problem to mentally retarded individuals. Retarded persons would be aided by the installation of telephones at major bus stops directly linked to a transit department operator who would know the location of the caller by the extension on which the call was received.

The residents generally found bus drivers willing to assist them when they sought information. Of those who ride the bus to work they knew the driver's name and a certain degree of rapport seemed to co-exist between them. They enjoyed conversations with other bus users. Drivers who travel routes most frequented by retarded individuals might be trained to recognize and aid these individuals when necessary since some are afraid to ask the driver for assistance. Their fear can be reduced by having a uniformed driver attend the institution's transportation classes. The representative could bring a bus and related traffic signs to the school for the residents to examine. This would

familiarize the students with the bus system and present a positive, friendly image of the bus driver.

Seventy-seven percent preferred to ride the bus rather than a taxi and a similar percentage were aware that it cost considerably less to ride the bus. They would prefer that their employers provide bus tickets which they would use rather than having to walk to work. However, if they can use the public transportation, they should pay their own fare and not be reimbursed. Their salaries should where possible, be made equivalent to others gainfully employed, so that transport cost relative to their net income is not substantially higher. The majority of the residents expressed a desire for Sunday bus service, which would provide them with access to work and leisure pursuits. The taxi and the institution's transportation are the modes available to them for Sunday trips.

V. Taxi Service

Most residents realize that it costs more to take a taxi than to ride the bus even though several only recognize coins by their shape and size. The desire to be included in an off-campus recreational activity determines if the fare is "too much" since several residents do not earn sufficient money for both transportation and recreational expenses. They relate travel and recreational costs to their income and even though they feel the bus fare is not too high they minimize on this cost by walking to most of their pursuits.

The taxi is frequently used by some for travel. Fifty-seven percent of the residents had used this service and 87 percent were aware of the procedure necessary to obtain a taxi. The primary disadvantage of the taxi is the cost incurred, a fact realized by 71 percent of those questioned. They were aware that taxi costs can be cut by group travel.

VI. Knowledge of Inter-City Travel

The respondents were asked questions about inter-city travel to determine their general knowledge about air, train and bus transportation and their experience with these modes. Seventy-six percent stated that they had made trips on an inter-city bus and are aware that several modes are available for inter-city travel. The majority are aware that the purchase of bus tickets is required and that it is less expensive to travel by inter-city bus than by airplane. They were generally aware that one boards an airplane at an airport. Several respondents stated they would never fly in an airplane since "it might crash." Two thirds have never travelled by train, but are aware that there is a station in Austin. They expressed no fear regarding train travel but may equate this with their experience of riding the local small park train which they may possibly perceive as comparable to normal train passenger service.

CHAPTER III. CURRICULUM GUIDE FOR TRAVEL AWARENESS

A curriculum guide should address the problem areas encountered in the study and indicate the minimum knowledge necessary for the resident to successfully utilize the various transportation modes available in the community. The guide discusses ten travel areas outlining the basic steps necessary for the teacher to develop travel awareness: Community Orientation; Pedestrian Mobility; Bicycle Use; Carpools; Taxi Service; Intra-City Bus and Car Travel; Inter-City Bus, Trains and Air Travel. The section concerning use of the city bus system is the only one presented here. This is done for illustrative purposes and is not intended to be definitive since the basic guide would require detailed expansion and extension. Appendix II outlines the ten travel areas.

Intra-City Bus Transportation: How to Use the Bus

A. Establishing an Appropriate Vocabulary

1. Bus stops

   a. locations
   b. hailing a bus

2. Bus schedules

   a. interpretation
   b. identification of routelinkage

B. Demonstrating Advantages and Disadvantages of Bus Travel

1. Cost factor relative to taxis
2. Time involved and flexibility
3. Problems of inclement weather

C. Practicing General Procedures of Bus Travel

1. Transfer tickets

a. obtaining a transfer
b. time limits
c. direction limits

D. Discussion of Appropriate Social Behavior

1. General rules

a. no smoking
b. standing behind indicated lines

2. Sitting while bus is in motion
3. Talking quietly

E. Discussion of Bus System Features and Their Purpose

1. Color of city buses
2. Route names and numbers

F. Illustration of Bus Maintenance and Storage: Field Trip

1. Personnel
2. Cleaning and operation

G. Demonstration of Signs, Maps, and Schedules

1. Distinction among clustered signs
2. Placement of signs
3. Transit information by phone

H. Boarding, Disembarking and Transferring

1. Punctuality and safety
2. Payment of fares
3. Obtaining transfers and passes

I. Discussion of Time and Distance Factors

1. Comparison with walking
2. Times required for specific destinations
3. Familiar landmarks along routes and at destinations or stops.

J. Discussion and Re-Emphasis on Information and Assistance

1. Requesting aid from drivers or passengers
2. Contacting transit authorities
3. Locating a telephone
4. Central transit points for reference when lost

Recommendations for Implementation of a Curriculum Guide

In order to assure that the individual becomes successfully integrated into the community, the following recommendations for the implementation of a curriculum guide are submitted:

1. Develop an intensive program applicable to the residents at the institution to include community orientation, pedestrian mobility, and intra-city transportation usage. Instruction in all the categories of the curriculum is viewed as necessary, but the information in these three categories is considered the minimum knowledge required for everyday utilization of public transportation by the residents.

2. Personnel, time, and monies permitting, it is strongly recommended that the entire community be utilized by the staff as the "classroom" (as frequently as possible). Community facilities and the personnel of various agencies should also be used during the training process.

3. Once the residents have learned to use the public transportation system adequately, the school should encourage frequent intra-city trips and hold regular review sessions to inform the residents of any changes within the public transportation system.

4. Based upon the premise that the residents will at the onset become users of the bus system and will make it their major means of tran sportation, and because the system is operated by the City, it is recommended that the City Council be approached with regard to the obtainment of complimentary passes for trainers and trainees while they are enrolled in the intensive travel training program.

5. For those persons receiving instruction under the institution's program it is recommended that the curriculum guide be included as part of the Behavioral Characteristics Progression program (BCP) and that either it be included in the developmental stages presently contained in the BCP or, even more desirable, that a separate clearing item be developed.

Prime factors to consider in determining the duration of this intensive implementation program are the previous educational experiences, extent of exposure to the city, and previous experience with the public transportation system by the individual. It is assumed that the resident will be pretested to determine the extent of his knowledge within these categories and that there will be an individualized program of instruction which will be geared to meet each resident's particular needs.

CHAPTER IV: CONCLUSIONS AND POLICY IMPLICATIONS

It is the thesis of this paper that a retarded person's spatially restrictive mobility pattern resulting from a paucity of travel training and institutional isolation so limits his environmental experience that his ability to collect and assimilate information on the location of job and recreational opportunities within an urban area is severely diminished. Consequently, programs designed to improve the quality and quantity of travel training and information available to retarded persons on how to utilize various travel modes are needed. Several possible methods could improve their knowledge of both the existence and location of opportunities: (1) expansion of the retarded person's knowledge of the urban area and the availability of transit facilities; (2) assistance through mobility aid and other supportive services at the initial stage of his travel training; and (3) improved methods of disseminating information about opportunities. Each of these methods for improving information flow to the mentally retarded can best be achieved through formal public agencies.

The mentally retarded person's need for expanded knowledge of the urban environment is critical. Travel information is practically meaningless unless the retarded are able to relate this information to their urban environment. As was demonstrated in this study, the

activity space of the retarded is extremely confined. One way to expand their geographic experience would be to make them cognizant of available transit facilities. Since many of them experience reading problems a method designating bus routes and stops through colors and signs may improve their mobility and consequent knowledge of the urban area.

The supervisory personnel need to become sensitive to the culturally conditioned responses to space that are manifest in the related behavior of the retarded. Interpretation of complex transit maps and tables is difficult, if not impossible, for many of them, some of whom are unable to relate themselves geographically to prospective places of recreation and employment. Since present transit maps and schedules are too complex for the retarded to comprehend, symbolic maps which represent the urban structure in terms comprehensible to them are required. Space, distance, and place may be perceived less clearly by the retarded so that present transit maps are of little use to them.

Various public services can expedite the assimilation of the retarded into the community by providing supportive services. One such service is free public transit at the early stage of employment. A card requesting the bus driver to stop at the nearest point to the job or recreational area would be another helpful service provided the individual did not feel stigmatized by this process. Counselors could allay any uncertainty, fear, or embarrassment they experience by escorting them at the initial stages to appropriate areas. This confidence-building may be necessary during the learning period.

The effect of implementing these measures depends on the quality of the instructor employed in the institutions and the transportation instruction provided the retarded. They must understand the retarded persons travel difficulties and the market's ability to meet his needs. A clearly defined curriculum guide on travel awareness with suitable terminology is required. Presently, institutions only offer a cursory treatment of this subject.

In addition to the dissemination of suitably designed information through pamphlets, posters, and radio announcements, instructors should inform these individuals of the location and utility of various local facilities. This contact mechanism would ease their mobility problems and help to accelerate their acculturation.

Furthermore, it is evidenced that misunderstandings, and the general failure to instruct the retarded can produce in them a negative attitude towards available travel modes. In the close-knit community within which they reside this can lead to adverse criticism about the travel program.

Historically, local, state, and federal programs designed to aid retarded persons have advocated institutionalization. Now, this position has changed to one which advocates placing retarded persons into the community whenever possible. To prepare these persons for this experience well structured travel training programs must be introduced into the institutions.

Past studies found that the inefficient use of independent transportation by the retarded persons is a result of inadequate travel training rather than an ability to learn. Institutional priorities should be re-evaluated and more emphasis placed on this program. When in the community, it is essential that the individual be able to move freely and independently between his residence, work place, shopping and recreational activities. There is little advantage to being relocated in an automobile and bus oriented community unless the individual is capable of utilizing the transportation services available to him.

While these suggestions for improving the flow of travel information to the educable retarded and for increasing their knowledge of their environment are important, the ultimate solutions to their problems will depend upon the effectiveness of long-range education and health programs and a community's ability to develop a sensitivity to their learning deficiencies and their individual problems.

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Two different age groups of children from five schools throughout Toronto were given outline maps of the city and a list of twenty landmarks. The students were asked to locate and number the landmarks on the map. The author sought to learn the extent of the children's understanding of their urban environments. The age of the children and the distance of their residences from the city center were found to influence the extent of their knowledge about the city.

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The author discusses the transportation problems of the elderly and suggests the jitney as a viable means of providing transportation for the elderly.

Daly, F.M., "The Program for Trainable Mentally Retarded Pupils in the Public Schools of California," Education and Training of the Mentally Retarded, Vol 1, No. 3 (October 1966), 109-118.

Mentioned are the laws and criteria concerning the education of trainable mentally retarded persons in California with reference to transportation problems. The teaching program and its goals are discussed, as well as the factors thought most important to the success of the program.

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This report is broken into three sections: the first section is devoted to objectives and problems involved in the study of perception; the second section deals with the work that should be done in disciplines other than geography; the third section develops a strategy whereby future research can be carried out in close conjunction with other disciplines.

"Educable Mentally Retarded - Level I, II, III." Fort Worth Public Schools Curriculum Bulletin No. 601 (1968), 1-55.

Included in this curriculum guide is a section on travel training for the mentally retarded.

Egan, Robert, "Should the Educable Mentally Retarded Receive Driver Education?" Exceptional Children, Vol 33, No. 5 (January 1967), 323.

A comparison is made of the driving skills and records of 18 retarded students and 18 regular students. The causes of the differences in their driving capabilities are discussed. Egan concludes that EMR's should not be allowed to drive.

Guskin, S.L. and Spicker, H.H., "Educational Research in Mental Retardation," International Review of Research in Mental Retardation, Vol 3 (1968).

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A special education teacher presents a short article about a traffic unit study conducted with her Primary I EMR class. Good ideas are presented for recognizing traffic signs and colors. Role-playing and dramatization for very young children are discussed.

Jensen, Arthur R., "Primary and Secondary Familial Mental Retardation," International Review of Research in Mental Retardation, Vol 4 (1970), 33-105.

The different types of genetic and cultural-familial retardation are discussed. A theory of primary and secondary retardation is advanced as an aid to educating the retardate in his occupational training. Persons with IQs of 50 are generally retarded in Level I (associative learning) processes. Those persons who are not institutionalized and have an IQ of between 50 and 75 will show little, if any, deficiency in Level I processes. Most teachers praise Level I learning but do not reward Level I learning, as it is viewed only as a means to Level II learning. The child with average or above in Level I learning ability soon loses interest because he is no longer reinforced.

Kubaiko, J.H., and Kokaska, C.J., "Driver Education for the Educable Mentally Retarded: Is Our Instruction Adequate?" The Training School Bulletin, Vol 66, No. 3 (November 1969), 111-114.

The ability of the mentally retarded to drive is not questioned in

this report, but rather the quality of instruction given to retardates. The authors point out the importance of attitudes toward self-improvement. Listed are procedures to follow when teaching the retarded travel skills. They also make a comparison between their proposed program and the programs currently being offered in some of the schools in Southeastern Michigan.

Kubat, A., "Unique Experiment in Independent Travel," Journal of Rehabilitation, Vol 39, No. 2 (1973), 36-39, 42.

A program was developed by the author to teach educable and trainable mentally retarded students to successfully complete a bus trip. The results of the training sessions were positive in that the experimental group did learn to properly ride and use the public transportation system.

Lukashok, A., and Lynch, K., "Some Childhood Memories of the City," Journal of the American Institute of Planners, Vol 22, No. 3 (1956), 142-152.

Forty subjects were asked to discuss their childhood memories of the cities in which they grew up. It was found that most remembered lawn foilage and play areas, but not a playground. Most subjects disliked "the city" and preferred suburbia.

Lynch, K., and Riukin, M., "A Walk Around the Block," Landscape, Vol 8, No. 3 (Spring 1959), 24-34.

An analysis is made of the reactions of twenty-seven subjects as they walk through an area of Boston. It was found, among other things, that a stranger to an area will divide the walk into parts, whereas the person familiar with the area will consider the walk as a whole.

Match, E., and Miller, A.W., "Two Driver Education Programs for the Physically and Mentally Handicapped," Exceptional Children, Vol 35, No. 7 (March 1969), 563-564.

The author describes two training programs offered in Pennsylvania. One program seeks to help the physically handicapped, while the other aids the mentally retarded. Statistics concerning training time, annual driver mileage and IQ range are given. The results of the training are described as being favorable and a recommendation is made that the physically and mentally handicapped be taught to drive in order to increase their mobility.

McCure, Judson W., "Including Driver Education in the Special Class Curriculum," Teaching Exceptional Children, Vol 2 (Spring 1970), 106-112.

A program developed by a teacher of EMR children in Sandusky, Ohio is discussed. A driver's license is a symbol of adulthood and EMR's need this since without it they have an inferior image of themselves. He found that state driving tests measure only minimal knowledge since it is based on the assumption that drivers will acquire additional knowledge incidentally or through experience. Since studies have shown that EMR children have difficulty learning complex material in an incidental manner it would appear that acquiring a knowledge of the more subtle aspects of traffic laws and how to apply them requires a more structured driver education program. He lists the knowledge and skills needed to learn to drive and suggests that special education teachers work in cooperation with qualified driver education teachers. His references include an annotated list of instructional materials, filmstrips, work texts, work kits, and a simplified driver's manual.

"Tips on Travel Instruction." Journal for Special Educators of the Mentally Retarded, Vol 9 (Spring 1973), 181.

This is very brief. Telephone practice: the ability to locate one's self and interpret this location. Street practice: understanding the number and sequences of street addresses, odd on one side, even on the other, and concepts such as uptown and downtown are discussed.

Trowbridge, C.C., "On Fundamental Methods of Orientation and Imaginary Maps," Science, Vol 38, No. 990 (1913), 888-897.

This article is the forerunner of mental mapping and describes two types of mental mapping: the ego-centric method and the domi-center method. The ego-centric method of orientation is based upon compass coordinates, and the domi-center method uses the person's home as the point of reference.

Wilson, Warner, "Social Psychology and Mental Retardation," International Review of Research in Mental Retardation, Vol 4, 229-262.

He advocates positive eugenics as a method of controlling retardation and cites the social problems of the retarded who are

often less accepted by their peers at school and on the job. Most quit their jobs because of teasing and ridicule by fellow workers. He raises the question whether retardates should be segregated by society. Even if they are officially segregated, a better social life for them is not assured, as they often choose their leaders on fighting ability alone. HEW estimates that 90% of all retarded individuals live outside institutions. He cites Strickland and Arrell (1967) who made a survey of the records in the state office of the Division of Vocational Rehabilitation and found that 80% of a sample of 1405 educable retarded youths found employment in jobs for which they were trained in the Texas Statewide Cooperative Program for Special Education in public schools. He cites Cohen (1963) as stating in a study that 65% of employers' studied said they would hire a mentally retarded person as readily as a normal, 1% or 2% would not hire a mentally retarded person under any circumstances, and 22% said they would hire a retardate only on a temporary basis.

Non-Annotated Articles

"How People Travel. Elementary Social Studies Grades 1-6," Public School System, Alice, Texas (1963), 53-55.

Tobias, Jack and Gorelick, Jack, "Training EMR Adults in Grooming and Self Care Skills, Teaching Trainables to Travel," The Digest of Mentally Retarded. Association for the Help of Retarded Children, N.Y.C. Chapter, Occupation Day Center. Vol IV, No. 3 (Spring 1968).

Annotated Books and Reports

Administration of Boarding Homes for Handicapped Children, Policies and Procedures, Wisconsin State Department of Public Transportation, Madison, January 1966, 7 pages.

The report suggests the policies and procedures by which children may be boarded in homes near the school when transportation from their rural area is not feasible.

Appleyard, D., Lynch, K., and Myer, J.R., The View from the Road. The M.I.T. Press, Cambridge, Massachusetts, 1964.

The authors are interested in how a driver's perception of his surroundings is influenced by road design. Recommendations are made for improved highway design.

Blaut, J.M. Studies of Place Perception in Elementary and Pre-School Education. Vol I, Final Report. Clark University, Worcester, Massachusetts, September 1971, 68 pages.

This final report briefly describes some of the findings of a research project funded by the Office of Education. Listed are the publications that are and will be printed as a result of this grant.

Blessing, Kenneth R. A Persisting Life Needs Approach to a Curriculum for the Educable Mentally Retarded. Wisconsin State Department of Public Instruction. Madison, Wisconsin. 1970. 283 pp.

This curriculum guide is designed for three educational levels: primary, intermediate and secondary. All levels discuss language, arts, number concepts, and related activities. The secondary section includes a unit on handling money and planning trips.

Bologa, James F., et al. The Measurement and Comparisons of Variables Related to Driver and Highway Safety Between Educable Mentally Retarded and Normal High School Age Students in Pennsylvania, February 1971.

The stated purpose of the study was to measure and compare the variables related to driving safety, and to designate factors which could be used to predict the success of EMRs operating motor vehicles when contrasted with students of normal intelligence. The variables considered were: age, height and weight, wearing of glasses and handedness, class in school, residence, father's occupation, and driver evaluation test scores.

Brody, Z.H. Transportation Problems in Special Education Programs in Rural Areas - A Specific Solution and Some Suggestions for Delivery System Development. Daniel Arthur Rehabilitation Center, Oak Ridge, Tennessee (1971), 1-12.

A dependent transportation system is developed to serve rural areas in Anderson County, Tennessee. Discussed are methods of transportation, maximum use of transportation facilities and driver selection.

Brown, Faye M. "Driver and Traffic Safety for EMR Young," Exceptional Children Conference Papers Specific Subject. Auburn University, Montgomery, Alabama (1971).

The author states that a driver and traffic safety program should be introduced at several educational levels, including elementary. In November 1968 the author sent questionnaires to 50 states and received replies. Only six said that any efforts were being made to provide travel training for EMRs. A discussion of the Alabama project is presented. Completed in 1969, this was a three-year joint project between the University of Alabama and the State Department of Education.

Curriculum Guide Educable Mentally Retarded: Senior High School Program, Little Rock Public Schools Department, Little Rock, Arkansas (1968), 1-268.

A section on driver training is presented in outline form.

Davitz, J.R., Davitz, L.J. and Lorge, Irving, Terminology and Concepts in Mental Retardation, Bureau of Publications, Teachers College, Columbia University, New York, 1964.

Included are lists of definitions of terms related to the field of mental retardation. Such terms are defined according to their etiological, educational, or legal sense. A review of the research in mental retardation concerning topics such as education, recreation, marriage and employment is given.

Dick, Herman F., "Symposium: Driver Education and EMR." Exceptional Children Conference Papers: Specific Subject. Oakland Schools. Pontiac, Michigan (1971).

The author feels that EMRs should learn to drive and are able to do so after proper training and after making necessary modifications to the automobile.

Gould, P.R., "On Mental Maps," Michigan Inter-University Community of Mathematical Geographers, Discussion Paper No. 9, September 1966.

After giving a review of the literature dealing with mental mapping, Gould conducts a study of the perception of residential desirability in the United States. Students from four universities in different areas of the U.S. were asked to rank order the forty-eight contiguous states according to their personal preferences. The findings are then analyzed using principle components analysis. The same procedure is used in the next two studies presented, that of the European's perception of Europe, and the view of an African elite (University graduates) toward their own country.

Graves, James W. Structures Activities in Perceptual Training to Aid Retention of Visual and Auditory Images. Chicago Board of Education, Chicago, Illinois (1971), 1-46.

Eight boys and girls were chosen to participate because of their inability to pass the Oral Reading Survey Test taken from the "Reader's Digest." The children were exposed to multiple experiences which allowed them to retain visual and auditory abstract word forms. A global clue pattern was formed to aid in retention. The program was successful in that word retention was improved and motivation was increased.

Jones, P.R. Transportation Services for the Retarded. Mental Retardation Selected Conference Papers by the Illinois State Department of Mental Health and Public Health Services, Arlington, Virginia, 1969.

Methods are described regarding the dependent travel a school district might use in transporting the mentally retarded. Approximate costs are given for facilities such as taxis, buses, leasing arrangements, and purchase of vehicles.

Kenel, Francis C. and Emily Krueger. Cooperative Driver Education Manual for the High School EMR Student. Milwaukee Public Schools. Division of Curriculum and Instruction (1969). 87.

The author states reasons why EMR's need to drive and the requirements necessary for acceptance in the Driver Education program. A curriculum guide to use in training the students is also presented.

Lynch, Kevin, The Image of the City. The M.I.T. Press, Cambridge, Massachusetts , 1960, 194.

The author considers the visual quality of three American cities by developing a method to study the mental image of the city as held by the citizens.

Nalven, Fredric, and Oliver, Adela. Final Report of the Evaluation of the Summer Program for Mentally Retarded Young Adults--Occupational Training Centers. New York City Board of Education, Brooklyn, New York, 1970, 1-54.

This report describes and evaluates two summer programs designed to aid the mentally retarded young adult in independent travel, self-image, and other skills.

Ruskin, Larry M. Long-Term Perceptual Memory in Educable and Trainable Retardates and Children with Learning Disabilities. Purdue University, Lafayette, Indiana. June 1970, 1-14.

Three tests were run using EMR's, TMR's and LLD's as subjects. It was found that TMR's and EMR's required more repetition of perceptual training than normal children to establish enduring perceptual memory. LLD's have the same difficulties, indicating a possible common learning problem independent of the level of intellectual functioning.

Saarinen, Thomas F. Perception of Environment. Association of American Geographers Resource Paper No. 5, 1969.

The author lists and describes work done in the field of environmental perception. The perception studies are organized according to scale, ranging from "personal space and room geography" to the world.

Scheer, Ralph M. et al. Community Preparedness for Retardates. Austin State School, Austin, Texas, 1969, 103.

Adjustment to adulthood by mentally retarded adolescent males is explained. The course content includes outlined programs for transportation, including bicycle training, securing employment, and other topics related to daily living skills.

Smith, John K. "Project Students: Safety Training Using Driver Education Non-Traditional Systems" Exceptional Children Conference Papers: Specific Subject. Montgomery County Board of Education, Dayton, Ohio. 1971.

A discussion is given of the Ohio Project for driver education of EMR students. A team teaching approach is highly recommended in all three papers. Three recommendations are presented: pre-driver education for junior high students (academic phase); instructional media, including simulation (transition to laboratory phase); and college courses in driver education for teachers of special education.

Transit Action Program 1972-1977. Traffic and Transportation Department, City of Austin, Texas.

The report reviews existing transit service in the city of Austin and makes recommendations concerning such topics as fare structure, routes, hours of service, and cost of improvements to the system.

Transportation and the Mentally Retarded. President's Committee on Mental Retardation, Washington, D.C. June 1972, 1-61.

A contract was awarded for the purpose of identifying the transportation problems of the mentally retarded. It was found that the mentally retarded are unable to travel independently primarily as a result of inadequate instruction. Recommendations concerning independent and dependent travel are made.

Waldvogel, Carol, "A Child's View of the City," Geographical Studies of Environmental Perception, Research Report No. 61, (Edited by Mary Tucey, and Rodney White). June 1971.

The author completed twelve interviews with children attending a school in Chicago ranging from first to eighth grades. The purpose of the study was to find out how children living in the city perceive the city and how this perception affects their thoughts and behavior. It was found that the age of the child was the factor which most influenced the child's perception. The younger children imagine the city to be nicer than it really is, while the older children think of the city as being exciting or violent. Some suggestions were offered by the author that would make the neighborhood more defined and more livable.

Non-Annotated Books and Reports

Aaron, James E., Driver Education for the Handicapped, a Resource Curriculum in Driver Education, Teachers' Preparation, Vol. I and II. Prepared for the Office of the Superintendent of Public Institutions, Driver Education Section, Springfield, Illinois, September 1971.

Behavioral Characteristics Progression. Santa Cruz County, Office of Education (1973), 23-45.

Catalog: School and Pedestrian Safety Education Material and Aids, American Automobile Association, Traffic Engineering and Safety Department, Falls Church, Virginia. Austin 1973.

Engberg, Eugenie, et al., Rehabilitation and Care of the Handicapped. International Relations Division and the Ministries of Labor and Social Affairs, Copenhagen. 1967.

General Survey and Brief History of the Development of Service Systems in Denmark, Edited by the Danish National Service for the Mentally Retarded, Copenhagen, 1969.

Geography Skills, Social Studies Program Grade 2. Cleveland Heights, Ohio. 1965, 3-9.

Goldstein, Herbert, et al. A Curriculum Guide for Teachers of the Educable Mentally Handicapped, The Illinois Plan for Special Education of Exceptional Children, published by the Interstate Printers and Publishers, Inc. (No publication date given.)

Grunewald, Karl, M.D. The Mentally Retarded in Sweden, The Swedish Institute, Lanstryckeriet, Nykoping, 1974.

Guide to a School Pedestrian Safety Program, Automotive Safety Foundation, Washington, D.C. January (1965).

Guide to the Community, Vol III, "Coping with Problems of Daily Living." Compiled by Elwyn Institute, Elwyn Pennsylvania, 1974.

National Safety Council Catalog Poster Dictionary, Dept. of Transportation, Washington, D.C. 1973-1974.

Patterson, Gene and Byrne, Richard, Editors. The Right to Choose - Achieving Residential Alternatives in the Community. National Association for Retarded Citizens. October 1973.

Per Kiil, L.L.M. Adult Vocational Training. Ministries of Labor and Social Affairs International Relations Division, Copenhagen. 1969.

The Quality of Care - Report of a Study Tour in Denmark, Sponsored by the National Society for Mentally Handicapped Children, May 1970.

Rules and Regulations for Pupils While Riding School District Buses, Austin Independent School District 1974.

Special Education Vol. I, Guidelines for Program Development, Texas Education Agency, Austin, Texas Bulletin 673 (1968).

Speir, Col. W.E., Bicycle Safety Program, Texas Department of Public Safety, Austin, Texas. 1972.

Speir, Wilson E., Manual Para los Manejadores de Texas. Departamento de Seguridad Publica de Texas. Austin, Texas. December 1971.

Speir, William E., Texas Drivers Handbook, Texas Department of Public Safety, Austin, Texas. February 1973.

Statutes and State Board Policies for Exceptional Children Transportation Cost Allotment and Guidelines for School Year 1972-1973 (Revised) Texas Education Agency, Austin, Texas.

Suggestions for Pedestrians - State of Texas - Department of Public Safety. Austin, Texas. Reprinted by permission, the National Conservation Bureau. 1972.

A Teacher's Guide for the Safest Route to School, Traffic Engineering and Safety Department - American Automobile Association Frees Church, Virginia. 1974.

Teacher's Guide to Bicycle Safety- Activities and Projects, American Automobile Association, Traffic Engineering and Safety Department, Washington, D.C. 1974.

Teacher's Triptik - Your Guide for the Traffic Safety Program - Grades 1 Thru 9. American Automobile Association. 1974.

Ways We Travel. Social Studies Program of Denver Public Schools, Grade 2. Denver, Colorado. 1966. 39-46.

When We Travel. Living and Working Together in Our Neighborhood Community. Lincoln, Nebraska. 1965. 16-21.

Appendix I: Transportation Questionnaire and Tabulated Results

In coding an incorrect answer a verbal response that is clearly wrong is distinguished from a "don't know" response. Several questions were designed to elicit only a "yes" or "no" answer, such as "Do you carry an identification card?" These questions cannot be categorized under the correct or incorrect code. Also, for example, numbers 59 and 22 do not correlate under code #6 because some do not ride the bus. Answers to questions 1 through 17 were solicited from supervisory personnel to obtain biographical data and to check on the reliability of the interviewee's answers.

TRANSPORTATION INTERVIEW
FOR MENTALLY RETARDED RESIDENTS OF
THE AUSTIN STATE SCHOOL, AUSTIN, TEXAS

1. NAME_____
2. SEX_____
3. OTHER HANDICAPS: (HEARING, SPEECH, VISION, ETC.)_____
4. CA 16-20_____ 21-29_____ 30-39_____ 40-49_____
   50-59_____ 60 OR OLDER_____
5. MA 6-7_____ 8-9_____ 10-11_____
   12 OR OLDER_____
6. IQ_____
7. HOW LONG AT ANNEX?_____
8. RESIDENT IS EMPLOYED? YES_____ NO_____ IF EMPLOYED, WHERE?
   _____
9. IF EMPLOYED, SALARY_____
10. HAS BEEN EMPLOYED FOR
    6 MONTHS_____ 10 MONTHS_____ 12 MONTHS_____
    24 MONTHS_____ +24 MONTHS_____
11. RESIDENT ARRIVES LATE?
    ALWAYS_____ SOMETIMES_____ NEVER_____ IF LATE, WHY?_____
12. RESIDENT COMES TO WORK REGULARLY?
    YES_____ NO_____ IF NOT, WHY?_____
13. _____COOPERATIVE
    _____FINISHES THE JOB
    _____LISTENS AND FOLLOWS DIRECTIONS
    _____IS MANNERLY
    _____DOES GOOD WORK
    _____HELPS OTHERS
    _____HAS A GOOD PERSONALITY
    _____HAS A GOOD ATTITUDE
    _____IS PHYSICALLY FIT FOR THE JOB
    _____EXPRESSES HIMSELF WELL
    _____HAS DEVELOPED NECESSARY VOCABULARY
    _____IS HONEST
    _____CAN WORK IN A CONFINED AREA
14. AVERAGE NUMBER OF TIMES PER WEEK RESIDENT LEAVES CAMPUS
    0-4_____ 5-9_____ 10-14_____ +15_____

15. TYPE OF TRANSPORTATION MOST USED
    PUBLIC BUS_____ CHARTERED BUS_____ SCHOOL BUS_____
    TAXI_____ PRIVATE CAR_____ BICYCLE_____ WALK_____
16. RESIDENT IS ALLOWED OFF-CAMPUS PRIVILEGES? YES_____ NO_____
17. REASON WHY RESIDENT DOES NOT USE (OR USE MORE OFTEN):

PUBLIC BUS

_____LACK OF SELF-CONFIDENCE
_____FEAR OF BEING LOST
_____EMBARRASSMENT
_____CANNOT READ
_____CANNOT MANAGE MONEY
_____CANNOT TELL TIME
_____NO SENSE OF DIRECTION
_____DOES NOT KNOW BUS SCHEDULE
_____DOES NOT KNOW TRANSFER PROCEDURE
_____DOES NOT KNOW WHERE BUS STOP IS
_____DOES NOT POSSESS ACCEPTABLE BUS BEHAVIOR
_____DOES NOT KNOW HOW TO GET OFF
_____DOES NOT KNOW HOW TO RECOVER IF LOST
_____DOES NOT KNOW HOW TO ASK FOR HELP
_____TOO FAR TO BUS STOP
_____RISK OF BEING STRANDED ESPECIALLY AT NIGHT
_____LONG WAITS FOR BUSES
_____DIRTY BUSES
_____OLD BUSES
_____RUDE BUS DRIVERS
_____NO BUS SHELTERS
_____ROUTES DO NOT GO WHERE YOU WANT TO GO
_____TOO MANY BUS RIDERS
_____UNDESIRABLE PEOPLE
_____NO BUS SERVICE AVAILABLE
_____OTHER

BICYCLE

_____LACK OF SELF-CONFIDENCE
_____FEAR OF BEING LOST
_____EMBARRASSMENT
_____CANNOT USE TELEPHONE
_____CANNOT TELL TIME
_____NO SENSE OF DIRECTION
_____NO BICYCLE AVAILABLE
_____DOES NOT KNOW HOW TO ASK FOR HELP
_____DOES NOT KNOW BICYCLE SAFETY
_____TOO LONG A RIDE TO WORK
_____CANNOT SECURE BICYCLE AT DESTINATION
_____DOES NOT KNOW CITY
_____FEARS CITY TRAFFIC

_____DOES NOT KNOW HOW TO RECOVER IF LOST

_____CANNOT READ TRAFFIC SIGNS

_____DOES NOT HAVE BICYCLE RIDING SKILLS

_____DOES NOT KNOW RULES OF ROAD

18. WHAT IS THIS? (SHOW MAP OF AUSTIN)_____

19. WHAT ARE THESE? (SHOW TRAFFIC SIGNS)_____

20. TELL ME THE NAME OF SOME OF THE BIG THINGS YOU HAVE SEEN IN AUSTIN (LIKE THE CAPITOL)_____

21. IS AUSTIN STATE SCHOOL IN THE WEST PART OF AUSTIN?_____

22. HOW LONG DOES IT TAKE TO TRAVEL TO WORK (AND BACK)?_____

23. DO YOU CARRY AN IDENTIFICATION CARD?_____

24. A. DO YOU CARRY A CARD THAT TELLS WHERE YOU ARE GOING?_____
    B. IF YOU GOT LOST OR FORGOT WHERE YOU WERE GOING, WOULD IT HELP YOU TO HAVE THE CARD?_____

25. A. WHAT WOULD YOU DO IF YOU GOT LOST?_____
    B. IF YOU DO NOT KNOW THE PHONE NUMBERS TO CALL FOR HELP, HOW CAN YOU GET THEM?_____

26. WHEN YOU WALK OFF THE CAMPUS, WHERE DO YOU GO?_____

27. WHEN YOU WALK TO THE 7-11 OR STOP AND GO, WHERE DO YOU CROSS THE STREET?_____

28. HOW FAR DO YOU HAVE TO WALK TO GET TO WORK FROM THE ANNEX AND BACK (IN CITY BLOCKS)?_____

29. WOULD YOU RATHER WALK TO WORK OR RIDE THE BUS?_____

30. DO YOU HITCHHIKE: A. TO WORK?_____ B. FOR RECREATION?_____ C. FOR SHOPPING?_____

31. DO YOU SOMETIMES NOT GO FOR WALKS BECAUSE THERE ARE'NT ANY SIDEWALKS?_____

32. WHICH SIDE OF THE STREET DO YOU WALK ON WHEN THERE IS NOT A SIDEWALK?_____

33. DO YOU KNOW HOW TO RIDE A BICYCLE?_____

34. IF YOU COULD RIDE A BICYCLE OFF CAMPUS, WHERE WOULD YOU GO?_____

35. CAN MORE THAN ONE PERSON RIDE A BICYCLE?_____

36. WOULD YOU LIKE TO LEARN TO RIDE A BICYCLE AND RIDE IT:
    A. TO WORK?_____ B. FOR RECREATION?_____
    C. FOR SHOPPING?_____

37. IF SO, WOULD SPECIAL BICYCLE LANES BE HELPFUL?_____

38. WOULD YOU LIKE TO BUY YOUR OWN BICYCLE?_____
    IF NOT, WHY?_____

39. HAVE YOU EVER RIDDEN IN A TAXI?_____

40. IF YOU WANTED TO GO TO THE STORE BY TAXI, HOW WOULD YOU GET ONE TO COME TO THE ANNEX AND PICK YOU UP?_____

41. WHERE IS THE NEAREST BUS STOP?_____

42. HAVE YOU EVER GONE DOWNTOWN BY BUS?_____

43. WHEN YOU WANT TO GET OFF THE CITY BUS, DO YOU HAVE TO PULL THE CORD?_____

44. A. HOW MUCH DOES IT COST FOR A BUS TRIP IN AUSTIN DURING PEAK HOURS?_____
    B. IN OFF-PEAK HOURS?_____

45. How much does a transfer cost?_____

46. What is the hour limit for the use of a transfer ticket?_____

_____

47. How often does the bus run that you take from the Annex?_____

_____

48. Is there a Sunday bus service at the Annex?_____

49. Do you understand the maps regarding the bus routes?_____

50. Do you understand the schedules?_____

51. Do you talk to the bus drivers in order to seek information regarding your destination?_____

52. Do you like the bus drivers?_____

53. Does the driver help you when you ask him to?

_____

54. Do you think that they understand you?_____

55. Where do you catch the bus when you leave the Annex?_____

_____

56. What is the number of the bus you ride when you leave the Annex?_____

57. What is the line name for the bus you ride from the Annex?

_____

58. What is the number of the bus you transfer to?_____

Name?_____

59. What is the number of the bus you take to come back to the Annex from work?_____

60. Have you seen a route map and schedule of the bus system in Austin?_____

61. Does the bus come on time?_____

62. Would you prefer buses as they are or buses with special lanes?

_____Explain._____

_____

63. What do you have to do when you want to get off the bus?

_____

64. Would it be helpful to you if the driver told you where to get off the bus?_____

_____

65. How do you know when to pull the buzzer cord?_____

_____

66. How do you know when you are almost where you want to go?_____

_____

67. What are some of the things that you should and should not do on the bus?_____

_____

_____

68. What happens if someone does something wrong on the bus?_____

_____

69. Would you like it better if your boss paid for your bus ticket?_____

Why?_____

70. IF YOUR BOSS GAVE YOU THE BUS TICKETS, WOULD YOU LIKE TO RIDE THE BUS TO WORK AND BACK TO THE SCHOOL INSTEAD OF WALKING?

71. DOES IT COST MORE TO RIDE THE BUS OR TAKE A TAXI?

72. WHAT COLOR ARE THE CITY BUSES?

73. WOULD YOU RATHER RIDE A BUS OR TAKE A TAXI?
WHY?

74. A. DO YOU LIKE TO TALK TO OTHER PEOPLE WHO RIDE THE BUS?

B. DO THEY TALK TO YOU?

75. DO YOU LIKE THE OTHER PEOPLE WHO RIDE THE BUS?

76. DO YOU THINK THAT IT COSTS TOO MUCH TO RIDE THE BUS?

77. HAVE YOU EVER BEEN ON AN INTER-CITY BUS?

78. HOW DO YOU GET TO THE BUS TERMINAL?

79. DO YOU NEED A TICKET TO GET ON AN INTER-CITY BUS?

80. HAVE YOU EVER BEEN ON A TRAIN?

81. DOES A TRAIN TRAVEL ON HIGHWAYS OR TRACKS?

82. WHAT CAN A PORTER AT THE TRAIN STATION DO FOR YOU?

83. HAVE YOU EVER BEEN ON AN AIRPLANE?

84. WHERE DO YOU GO TO GET ON AN AIRPLANE?

85. WHEN YOU GO HOME, IS IT CHEAPER TO TRAVEL BY AIRPLANE OR BUS?

Options:
Work, Main Campus

Average Number of Trips Per Week
Trips Related to Training or Work Activities

	PUBLIC BUS	CHARTERED BUS	SCHOOL BUS	TAXI	PRIVATE CAR	BICYCLE	WALK
SUNDAY							
MONDAY							
TUESDAY							
WEDNESDAY							
THURSDAY							
FRIDAY							
SATURDAY							

Options:
Annex, Shop, Recreation,
Visit, Main Campus, Church,
School, Other

Average Number of Trips Per Week
Trips Related to Leisure Time

	PUBLIC BUS	CHARTERED BUS	SCHOOL BUS	TAXI	PRIVATE CAR	BICYCLE	WALK
SUNDAY							
MONDAY							
TUESDAY							
WEDNESDAY							
THURSDAY							
FRIDAY							
SATURDAY							

If shop, indicate which shopping area_____

If church, indicate address_____

If recreation, indicate area_____

TABLE I

Percentage Distribution of Combined Resident Responses to Transportation Questionnaire: Summer 1974

Respondent Reply

Question #	1 *	2*	3 *	4 *	5*	6 *
18	44	34			21	
19	7	43			50	
20	70	4			26	
21	29	40			31	
22	11	7			13	69
23			59	41		
24a				100		
24b			96	3	1	
25a	94				6	
25b	81				19	
26	96				1	3
27	84	7			9	
28	1	1			17	80
29	Walk 9	Ride Bus 11				80

* Code: 1-Correct, 2-Incorrect, 3-Yes, 4-No, 5-Don't know, 6-Not applicable.

Source: Calculated by authors from Transportation Questionnaire Delivered at TDMH-MR: Austin State School-Annex Campus.

Table I continued

Question #	1	2	3	4	5	6
30a			4	16	1	80
30b			17	80	1	1
30c			17	79	3	1
31			40	49	7	4
32	74	21			4	
33			60	40		
34	76			14	6	4
35	74	21			4	
36a			37	14		49
36b			67	26		7
36c			66	29		6
37			81	4	1	13
38			70	23		7
39			57	41	1	
40	87				13	
41	84	1			14	
42			66	31	4	
43	87	1			11	
44a	37	27			36	
44b	33	17			50	
45	29	19			53	

Table I continued

Question #	1	2	3	4	5	6
46	4	36			60	
47	16	30			53	1
48	60	27			13	
49			14	83	1	1
50			17	80	1	1
51			61	21	1	16
52			83	3		14
53			63			37
54			63			37
55	84				14	1
56	14	19			57	10
57	29	7			54	10
58	4	1			17	77
59	3				10	87
60			30	67	3	
61			39	24	33	4
62			63	9	20	9
63	71	1			24	3
64			66	6	23	6
65	56	9			24	11
66	53	4			31	11
67	77				23	

Table I continued

Question #	1	2	3	4	5	6
68	69				31	
69			14	9	1	76
70			13	4	1	81
71	71	20			9	
72	80	10			10	
73	Ride Bus-77	Ride Taxi-17				6
74a			64	19		17
74b			69	14		17
75			77	4		19
76			16	74	6	4
77			66	34		
78	70	4			26	
79	90	3			7	
80			34	66		
81	96	4				
82	41	23			36	
83			23	77		
84	90				10	
85	70	17			13	

Table II

Percentage Distribution of Resident Male Responses to Transportation Questionnaire: Summer 1974

Question #	Respondent Reply 1*	2 *	3 *	4 *	5 *	6 *
18.	48	30			21	
19.	9	33			58	
20.	67	9			24	
21.	27	42			30	
22.	15	9			12	64
23.			58	42		
24a.				100		
24b.			97	3		
25a.	91				9	
25b.	79				21	
26.	94					6
27.	79	12			9	
28.		3			18	79
29.	Ride Bus-6		Walk-15			79
30a.			9	15		76
30b.			30	67		3
30c.			30	64	3	3
31.			55	30	6	9
32.	88	9			3	

*Code: 1-correct, 2-incorrect, 3-yes, 4-no, 5-don't know, 6-not applicable.

Source: Calculated by authors from Transportation Questionnaire Delivered at TDMH-MR: Austin State School-Annex Campus.

Table II continued

Question#	1	2	3	4	5	6
33.			82	18		
34.	85			6	6	3
35.	73	24			3	
36a.			64	3		33
36b.			88	9		3
36c.			85	12		3
37.			91	6	3	
38.			88	9		3
39.			67	33		
40.	82				18	
41.	88				12	
42.			64	30	6	
43.	91				9	
44a.	36	39			24	
44b.	27	21			52	
45.	21	21			58	
46.	3	33			64	
47.	21	24			55	
48.	45	45			9	
49.			9	88	3	
50.			12	85	3	

Table II continued

Question#	1	2	3	4	5	6
51.			64	18	3	15
52.			85			15
53.			61			39
54.			61			39
55.	88				12	
56.	21	12			58	9
57.	18	12			58	12
58.		3			21	76
59.					15	85
60.			27	67	6	
61.			62	21	36	
62.			61	12	18	9
63.	67				33	
64.			61	3	33	3
65.	55	12			21	12
66.	58	3			27	12
67.	70				30	
68.	70				30	
69.			21	9	3	67
70.			18	6	3	73
71.	76	18			6	

Table II continued

Question#	1	2	3	4	5	6
72.	73	12			15	
73.	Ride Bus-70		Ride Taxi-24			6
74a.			73	6		21
74b.			73	6		21
75.			76			24
76.			18	70	6	6
77.			76	24		
78.	70	9			21	
79.	94	3			3	
80.			21	79		
81.	94	6				
82.	36	18			45	
83.			24	76		
84.	88				12	
85.	79	18			3	

Table III

Percentage Distribution of Resident Female Responses to Transportation Questionnaire: Summer 1974

Question#	Respondent Reply 1*	2*	3*	4*	5*	6*
18.	41	38			22	
19.	5	51			43	
20.	73				27	
21.	30	38			32	
22.	8	5			14	73
23.			59	41		
24a.				100		
24b.			95	3	3	
25a.	97				3	
25b.	84				16	
26.	97				3	
27.	89	3			8	
28.					19	81
29.	Ride Bus-16		Walk-3			81
30a.				16	3	81
30b.			5	92	3	
30c.			5	92		3
31.			27	65	8	
32.	62	32			5	

*Code: 1-correct, 2-incorrect, 3-yes, 4-no, 5-don't know, 6-not applicable.

Source: Calculated by authors from Transportation Questionnaire Delivered at TDMH-MR: Austin State School-Annex Campus.

Table III continued

Question#	1	2	3	4	5	6
33.			41	59		
34.	68			22	5	5
35.	76	19			5	
36a.			14	24		62
36b.			49	41		11
36c.			49	43		8
37.			73	3	22	3
38.			54	35		11
39.			49	49	3	
40.	92				8	
41.	81	3			16	
42.			68	30	3	
43.	84	3			14	
44a.	38	16			46	
44b.	38	14			49	
45.	35	16			49	
46.	5	38			57	
47.	11	35			50	3
48.	73	11			16	
49.			19	78	3	
50.			22	76	3	

Table III continued

Question#	1	2	3	4	5	6
51.			59	24		16
52.			81	5		14
53.			65			35
54.			65			35
55.	81				16	3
56.	8	24			57	11
57.	38	3			51	8
58.	8				14	78
59.	5				5	89
60.			32	68		
61.			35	27	30	8
62.			65	5	22	8
63.	76	3			16	5
64.			70	8	14	8
65.	57	5			27	11
66.	49	5			35	11
67.	84				16	
68.	68				32	
69.			8	8		84
70.			8	3		89
71.	68	22			11	

Table III continued

Question#	1	2	3	4	5	6
72.	86	8			5	
73.	Ride Bus-84		Ride Taxi-11			5
74a.			57	30		14
74b.			65	22		14
75.			78	8		14
76.			14	78	5	3
77.			57	43		
78.	70				30	
79.	86	3			11	
80.			46	54		
81.	97	3				
82.	46	27			27	
83.			22	78		
84.	92				8	
85.	62	16			22	

Appendix II: A Curriculum Guide for Developing Travel Awareness

The curriculum guide addresses the problem areas encountered in the study and contains the minimum knowledge necessary for the resident to successfully utilize the various transportation modes available in the community. It is a basic guide whose implementation would require detailed expansion and extension. The guide discusses ten travel areas outlining the basic steps the teacher would need to address to improve travel awareness. This is provided for illustrative purposes and is not intended to be definitive.

A. Community Orientation: Finding Your Way Around the City

B. Pedestrian Mobility: Walking in the City

C. Bicycle Transportation: Bicycling in the City

D. Carpool Transportation: How to Join or Start a Carpool

E. Taxi Transportation: How to Use Taxi Services in the City

F. Intra-City Bus Transportation: How to Use the Buses in the City

G. Inter-City Bus Transportation: How to Travel to Your Hometown

H. Train Transportation: How to Travel to Your Hometown

I. Air Transportation: How to Travel to Your Hometown

J. Car Transportation: Driving and/or Ownership of a Car

A. Community Orientation: Finding Your Way Around the City

1. Establish the appropriate mobility and locational vocabulary

2. Discuss and locate familiar businesses around the institution (e.g., post office, laundromat, bakery, and grocery)

3. Make them aware of the city.

4. Discuss distinct city features (e.g., business district, shopping areas, residential areas, and recreation)

5. Establish and discuss the distance, time and cost incurred in travelling between various points in the city

6. Take a field trip to these main points of interest

7. Discuss the city's public services (e.g., water, light, sanitation, health, and transportation)

8. Take a field trip to these public service agencies

9. Study simplified maps, photographs, and the general street layout of the city

10. Discuss and establish directions such as North, South, Uptown, Downtown, etc.

11. Discuss the general residential and commercial numbering system of streets and buildings

12. Discuss the travel and sign system in the city

13. Discuss the highway system in and around the city

14. Discuss and visit the lakes, rivers and other natural features in and around the city

15. Discuss, emphasize, and re-emphasize the action required to secure information concerning these above points

B. Pedestrian Mobility: Walking in the City

1. Establish the appropriate pedestrian vocabulary
2. Discuss the advantages and disadvantages of walking
3. Discuss the appropriate social behavior to be followed while walking
4. Discuss the traffic signs that are related to pedestrian safety
5. Teach the pedestrian regulations that pertain to walking within the institutions grounds and pedestrian safety off campus
6. Discuss the factors involved in planning a walking excursion and the areas of interest within walking distance of the institution
7. Discuss the various routes one may use to get to different locations
8. Walk with residents to public service facilities, recreational areas, etc. within walking distance of the institution
9. Walk with residents in various traffic conditions and at different times of the day
10. Establish the time and distance factors involved for a given walking excursion
11. Discuss the appropriate clothing for various weather conditions
12. Discuss, emphasize, and reemphasize action necessary to secure information and assistance pertaining to the above

C. Bicycle Transportation: Bicycling in the City

1. Establish the appropriate vocabulary
2. Discuss the advantages and disadvantages associated with this mode of transportation
3. Teach the individual how to ride a bicycle
4. Discuss the traffic signs designed for bicycle traffic
5. Teach bicycle safety
6. Teach bicycle regulations applicable on campus
7. Teach the bicycle regulations that pertain to city travel
8. Teach how to care for and maintain a bicycle
9. Discuss the areas of interest that are within cycling distance of the institution
10. Discuss the various routes one may use to get to a given point
11. Establish the time and distance factors associated with various cycling excursions
12. Take bicycle rides to public service facilities, recreation areas, etc. within cycling distance of the Annex
13. Discuss the appropriate social behavior expected of cyclists
14. Take bicycle rides in various traffic conditions and at different times of the day
15. Discuss the appropriate clothing to wear for various weather conditions
16. Discuss, emphasize, and reemphasize the action necessary to secure information and assistance pertaining to the above

D. Carpool Transportation: How to Join or Start a Carpool

1. Establish the appropriate vocabulary
2. Discuss the advantages and disadvantages of using this method of transportation
3. Discuss the purpose and general features of a car
4. Discuss how one can organize a carpool
5. Discuss conditions under which one can approach another person regarding a carpool
6. Discuss the appropriate social behavior expected of a member of a carpool
7. Discuss the appropriate cost in terms of money of furnishing this service
8. Discuss, emphasize, and reemphasize the action necessary to secure information and employer assistance in the creation of a carpool

E. Taxi Transportation: How to Use Taxi Services

1. Establish the appropriate vocabulary
2. Discuss the purpose of a taxi and its general features
3. Discuss the advantages and disadvantages of using taxi services
4. Discuss the cost of using the taxi and how this cost can be shared with other riders
5. Discuss the relative cost of the taxi when compared to other modes
6. Discuss the various ways of procuring taxi service
7. Discuss the appropriate social behavior expected when using taxi services
8. Discuss the appropriate behavior expected of a taxi driver
9. Discuss, emphasize, and reemphasize the action required to obtain information and assistance concerning taxi transportation

F. Intra-City Bus Transportation: How to Use the Bus in the City

1. Establish the appropriate vocabulary

2. Discuss the advantages and disadvantages of using this mode of transportation

3. Discuss the general procedures involved in using this mode of transportation

4. Discuss the appropriate social behavior expected of a person during a bus trip

5. Discuss the purpose and general features of the bus system

6. Discuss the purpose and general features of the bus maintenance and storage area and take a field trip to this area

7. Discuss the city bus signs, maps, and schedules

8. Discuss the procedure for boarding, disembarking and transferring

9. Discuss the time and distance factors involved for various selected trips

10. Discuss, emphasize, and reemphasize the action necessary to secure information and assistance on bus travel

G. Inter-City Bus Transportation: How to Travel to Your Hometown

1. Establish the appropriate vocabulary

2. Discuss the advantages and disadvantages of using this mode of transportation

3. Discuss the general purpose of the inter-city bus system

4. Discuss the factors involved in planning a trip home (the comparative costs and services of the various available modes) or for a holiday

5. Discuss the various ways to get to a bus terminal and how to reach your final destination after getting off the bus

6. Discuss the purpose of and general features of a bus terminal and take a field trip there

7. Discuss the purpose of and how to obtain an inter-city bus ticket

8. Discuss the appropriate social behavior expected of a person during a bus trip

9. Discuss the purpose and general features of inter-city buses, including toilets, bell signals

10. Discuss the personnel involved in an inter-city bus trip and their duties

11. Discuss how baggage is handled on an inter-city bus trip

12. Discuss the signs and schedules used by this mode of transportation

13. Discuss the time and distance factors involved for various given trips

14. Discuss the general procedures for on-boarding for changing buses, at rest stops and for off-boarding

15. Discuss the various outstanding natural and man-made features one might see on a given inter-city bus trip and take one

16. Discuss, emphasize, and reemphasize the action necessary to secure information and assistance on factors pertaining to the above

H. Train Transportation: How to Travel to Your Hometown

1. Establish the appropriate vocabulary

2. Discuss the advantages and disadvantages of using this mode of transportation

3. Discuss the factors involved in planning a train trip home or for a holiday

4. Discuss the general purpose of train transportation

5. Discuss the various ways to get to the train station and the various ways to reach one's final destination after getting off the train

6. Discuss the purpose and general features of a train depot and a train and take a trip to the station

7. Investigate the mechanics and features of a train engine, restaurant car, sleeping berths, toilets - on a field trip

8. Discuss the personnel involved in a train trip and their duties

9. Discuss the purpose of and how to obtain a train ticket

10. Discuss how baggage is handled during a train trip

11. Discuss the general procedures for boarding, disembarking from a train and for changing trains

12. Discuss the signs and schedules associated with this mode of transportation

13. Discuss the time and distance factors involved in various trips

14. Discuss the appropriate social behavior expected during a train trip

15. Discuss the various outstanding natural and man-made features one might see on a given train trip

16. Discuss, emphasize, and reemphasize the action necessary to secure information and assistance concerning the above mode

I. Air Transportation: How to Travel to Your Hometown

1. Establish the appropriate vocabulary

2. Discuss the advantages and disadvantages of using this mode of transportation

3. Discuss the factors involved in planning the airplane trip home or for a holiday

4. Discuss the various ways to get to an airport and the various ways to reach one's final destination after landing

5. Discuss the general purpose of air transportation and take a field trip to the airport and look over an airplane

6. Dicuss the purpose and general features of an airplane, including safety measures and oxygen masks

7. Discuss how one's baggage is handled during an airplane trip

8. Discuss the purpose of a plane ticket and how to obtain one

9. Discuss the appropriate social behavior expected during an airplane trip

10. Discuss the various personnel involved in an airplane trip and their duties serving food and drinks, etc.

11. Discuss the general procedures for boarding, and off-boarding an airplane and for changing planes

12. Discuss the purpose of and how to obtain flight insurance

13. Discuss the signs and schedules used by this mode of transportation

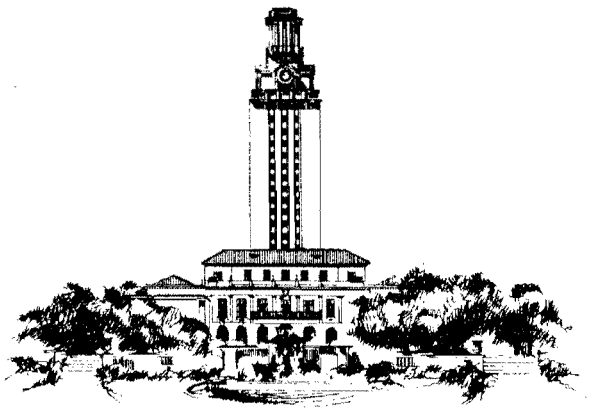
14. Discuss the time and distance factors involved for a given airplane trip

15. Discuss the various outstanding natural and man-made features one might see on a given airplane trip

16. Discuss, emphasize, and reemphasize the action necessary to secure information and assistance on factors pertaining to the above

J. Car Transportation: Driving and Owning a Car

1. Establish an appropriate vocabulary
2. Discuss the advantages and disadvantages of driving and/or owning a car
3. Discuss the purpose of a Learner's Permit and how to obtain one
4. Discuss the purpose of a State Driver's license and how to obtain one
5. Discuss the general procedures involved in purchasing a car
6. Discuss the purpose of a license plate and how to obtain one
7. Discuss the procedures involved and the purpose of obtaining state vehicle inspection
8. Discuss the purpose of vehicle insurance and how to obtain it
9. Discuss general vehicle maintenance and costs
10. Discuss how to obtain a vehicle registration certificate for title of ownership and the purpose of this document
11. Teach vehicle traffic safety and the recognition and meaning of traffic signs and study road and highway maps
12. Discuss the general purposes of traffic courts, laws, and lawyers
13. Discuss the procedures an individual should take if he is involved in a traffic accident
14. Take a field trip to the Department of Public Safety, the County Courthouse, lot, etc.
15. Discuss the travel time and distance involved in getting to a specific point
16. Discuss, emphasize, and reemphasize the actions necessary for securing information and assistance pertaining to the above



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