

ACCESSIBILITY OF THE DIFFERENTLY ABLED IN PUBLIC PLACES: AN EMPIRICAL ANALYSIS

**BABASAHEB
BHIMRAO
AMBEDKAR
UNIVERSITY**



LUCKNOW
प्रज्ञा शील करुणा
ESTABLISHED 1996

THESIS

SUBMITTED

**FOR AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY IN HOME SCIENCE**

Supervisor

Dr. U.V. KIRAN
Associate Professor
School of Home Science

Research Scholar

ARCHANA SINGH
Enrollment No. 807/13
School of Home Science

**DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES,
SCHOOL FOR HOME SCIENCES**

**BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY
(A CENTRAL UNIVERSITY)
VIDYA VIHAR, RAEBARELI ROAD,
LUCKNOW-226025 (U.P), INDIA**

2018

SUMMARY

Accessibility for all is known as a basic requirement, and there are attempts all over the World to ensure this. Barrier-free features are now becoming fundamental to all design concepts. The awareness level about the necessity of barrier-free access needs to be raised. The existing code must be effectively implemented to break barriers, open doors for an inclusive society. This new design approach will provide a barrier-free environment for all. The social aim of this study is to integrate disabled people into society in order for them to take an active part in society and lead a normal life. To be active, a disabled person should be able to commute between home, work and other destinations. The technical aim of this research is to provide a barrier-free environment to the differently abled in public places to ensure their independent, comfort and safety.

The word *disability* indicates human limitation of one kind or other, in performing various tasks performed by other human beings in general. It may be one or more of the kind of physical, mental or sensory, including visual and hearing. Generally people with disability automatically become underprivileged, because they may not have proper access to the resources, accessible otherwise. Persons with disabilities incorporate the individuals who have long haul physical, mental, scholarly or tactile debilitations, which, in connection with different hindrances, may block their full and successful investment in the public eye on an equivalent premise with others.

Barrier-free environment is one which enables people with disabilities to move about safely and freely and use all facilities within the built environment, roads, parks, gardens and other places. The goal of barrier-free design is to provide an environment that supports independent functioning of individuals so that they can participate in all activities without assistance. There is a popular belief that a ramp and an elevator/lift is all that is needed to make a built space barrier-free. But barrier-free has many other aspects ranging from door and passage widths to flooring surface, from counter heights to door handles and railings and from signage to auditory signal. Barrier-free design should be incorporated to access disabled persons

The present study entitled “**Accessibility of the differently abled in public places: An empirical analysis**” focused on exploring the problems faced by differently abled (Visually Impaired, Hearing Impaired and orthopedically handicapped) in public places. The present research was carried out with the following objectives-

- 1- To explore the infrastructural facilities available for the disabled in the public places.**
- 2- To study the problems faced by the differently abled in various public places.**
- 3- To compare the available facilities with the standards given under government provisions.**
- 4- To design computer aided prototypes incorporating the requisite facilities in one of selected public places ensuring independence to differently abled.**

CHAPTER WISE SUMMARY

The study has been completed in five chapters. The introduction has been presented in first chapter. Chapter two dealt with review of literature. Methodology has been presented in chapter third. Chapter four dealt with analysis of primary data. This is the last chapter which provides summary and conclusion of the research. The summary, chapter wise is presented under-

In Chapter 1, the introduction of the study, its objectives, research problems, sources of data have been outlined. This chapter begins with a short background of disability, concept of disability, present status of disabled people, types of disability, barriers in public places and out lined the objectives of the present research.

Chapter 2 dealt with the major studies related to problems faced by differently abled in public places. This chapter also dealt with theoretical perspective of disability, types of disability, models of disability, Availability of infrastructure facilities and problems faced

by differently abled in public places, Social problems faced by the differently abled in public places.

Chapter 3 dealt with methodology of the study, which provides a short introduction of the research design, sampling procedure, tools and techniques, study area and sample procedure, data collection, data analysis and design of the prototype. It helps in preparing a framework for the further study. Conceptual Model of the research work and operational definition of terms of research also has been presented in this chapter. Identified dependent and independent variables have also been discussed in this chapter.

Chapter 4 is concerned with detailed discussion of the obtained results pertaining to each objective. Frequency distribution was used to calculate percentage of male and female respondents regarding purpose of problems faced by persons with disabilities in public places. Exploration of the infrastructural facilities available for the differently abled in the public places has been presented in tabular form. Exploration of the problems faced by the differently abled in various public places was assessed using ANOVA. Comparison of the available facilities with the standards (Harmonized guidelines and space standards for barrier free built environment for persons with disabilities and elderly persons. Government of India ministry of urban development February 2016) have been presented in tabular form. This chapter also dealt with prototype development and customization of prototype. A computer aided prototype of 'railway station' developed for persons with disabilities (orthopedically handicapped, visual impaired, hearing impaired) incorporating the requisite facilities of railway station to enhance the users' quality of life is developed and the same is discussed in detail.

5.1. MAJOR FINDINGS OF THE RESEARCH

The present research was carried out in the following phases -:

5.1.1 Selection of Public Places

In the first phase, a survey was conducted in Lucknow city. In this phase public places which are prominently used by the majority of population for services were identified and listed i.e. railway stations, bus stations, banks and ATMs.

5.1.2 Selection of Sample (Differently abled)

In the second phase of the study, one of the institutes catering to differently abled was selected using purposive sampling technique from among the various institutions located at Lucknow. Thirty respondents were selected purposively from three major categories of differently abled, who has to face hurdles in public places were identified i.e. visually impaired, hearing impaired and orthopedically handicapped totaling to 90 respondents. The sample was selected to explore the problems faced by them in public places using a self structured tool.

5.1.3. Exploration of the problems faced by the differently abled in various public places.

Problems faced by differently abled at railway stations-

- Major finding of this study shows that the infrastructural facilities available for differently abled at railway stations were more problematic for OH person they were facing more difficulties as compared to VI and HI persons.
- Entrance & exit dimensions of railway stations in subjects of Group OH (1.30 ± 0.53) were found to be significantly higher than that of Group VI (0.37 ± 0.85) and Group HI (0.77 ± 0.68).
- Problem due to lack of ramp at railway stations for subjects of Group OH (2.13 ± 1.78) was found to be higher than that of Group VI (1.53 ± 1.07) and Group HI (1.27 ± 1.93) but difference in mean scores was not found to be statistically significant.
- The problem due to lack of facility of over bridges at railway stations among subjects of Group OH (1.73 ± 1.39) was found to be significantly higher as compared to Group HI (0.93 ± 1.39) and comparable to that of Group VI (1.23 ± 0.86).

Problems faced by differently abled at bus stations-

- Mean scores were found to be higher in Group OH(4.80±1.85) as compared to Group VI (2.57±2.94) and Group HI (3.67±2.09) for general facilities at bus stations, this difference was found to be statistically significant.
- Staircase at bus stations among subjects of Group VI (2.23±2.06), group OH (2.60±0.81) and group HI (2.17±1.29) was not found to be statistically significant.
- Pathways at bus stations among subjects of Group OH (2.27±1.08), Group VI (2.03±1.79) and Group HI (1.60±1.38) were not found to be statistically significant.
- Canteens of bus stations for differently abled were found to be higher in Group OH (4.00±2.18) as compared to Group VI (2.03±3.42) and Group HI (3.17±3.01), this difference was found to be statistically significant.

Problems faced by differently abled at banks-

- Mean score of general facilities of banks were found to be higher in Group OH (4.73±1.34) as compared to Group VI (2.47±2.67) and Group HI (2.27±2.24), this difference was found to be statistically significant.
- Problem due to height of bank counters was higher in Group OH (1.93±1.20) as compared to Group VI (1.37±1.30) and Group HI (1.23±1.07) but difference was not found to be statistically significant.
- The problem due to lack of facilities of ramps for differently abled were found to be higher in Group OH (4.37±3.03) as compared to Group VI (4.10±2.38) and Group HI (1.87±2.66), this difference was found to be statistically significant.

Problems faced by differently abled at ATMs-

- General facilities of ATMs were found to be higher in Group OH (5.67±2.37) as compared to Group VI (3.70±2.68) and Group HI (4.37±2.58), this difference was found to be statistically significant.

- Facility of ramps at ATMs among subjects of Group VI (4.77 ± 5.27), Group OH (6.00 ± 2.92) and Group HI (5.63 ± 2.62) was not found to be statistically significant.
- The problem due to staircases at ATMs for differently abled were found to be higher in Group OH (3.53 ± 1.89) as compared to Group VI (2.23 ± 2.18) and Group HI (3.33 ± 1.81), this difference was found to be statistically significant.

5.1.3. EXPOLRATION OF THE INFRASTRUCTURAL FACILITIES AVAILABLE FOR THE DIFFERENTLY ABLED IN PUBLIC PLCES AND COMPARISION WITH THE STANDARDS.

Comparison of the available facilities with the standards in railway stations-

- All the three railway stations have more door width than the standards and consequently movement through for the differently abled is suitable.
- Railway station A and C has no ramp facility and without ramp and guiding blocks in the railway stations, differently abled especially wheelchair users and visually impaired people cannot reach the railway station easily.
- Height of riser in railway stations A and C, was found to be more than the standards (railway station-A 153mm and railway station- C 170 mm), Hence differently abled face problem in climbing the stairs.
- Toilet door width was found to be in railway station ‘B’ and ‘C’ (850mm), (800mm) were lesser than the standard. So differently abled especially wheelchair users cannot enter the toilet.
- In all the railway stations, the counter height was not found according to standards (railway station-A 1250mm, railway station-B 1066mm, railway station-C 1200mm.) The counter height was not convenient for differently abled because of the excessive height of the counter.
- Platform guiding block for impaired vision from the edge and guiding block for

persons with impaired vision away from the ticket vending machine found to be missing in selected railway stations. Therefore visually impaired people cannot find out the railway track ahead, which may be quite dangerous.

Comparison of the available facilities with the standards in bus stations-

- The stairs facility was found missing in bus station A. Bus station-B (750 mm) was lesser than the standard width.
- Toilet door width found in bus station 'A' and 'B' were 750mm; 600mm respectively was lesser than the standard and doors are not wide enough to enter with the wheelchair, differently abled, especially wheelchair users cannot enter the toilet.
- Guiding blocks was found to be missing in all the surveyed bus stations. Without guiding blocks differently abled, especially visually impaired people find difficulty in recognizing the toilet ahead.
- Ramp facility was found missing in the bus stations, differently abled especially wheelchair users and visually impaired people cannot reach the bus stations easily.
- In all the bus stations, the counter height was not as per the standard standards (bus station-A 1000mm, railway station-B 1006mm.) The counter height was not convenient for differently abled because of the excessive height of the counter.

Comparison of the available facilities with the standards in banks-

- Banks have door width according to the standards and hence movement through for the differently abled is convenient (bank A-900mm, bank B-900mm.).
- Width of the tread should be 300 mm. and in bank A and B tread width was lesser than the standard, so differently abled cannot put their feet properly.

- In all the banks, the counter height was not found according to standards (bank-A 1066 mm, and bank-B 1350mm.) The counter height was not convenient for differently abled because of the excessive height of the counter.
- Switches are placed at a height, in all surveyed banks, where the wheelchair users cannot use them at all.
- The facility of ramp and guiding blocks was found missing in surveyed banks. So differently abled especially wheelchair users and visually impaired people cannot reach the bank easily.

Comparison of the available facilities with the standards in ATMs-

- The ramp facility was found to be missing in all the ATMs. Without ramp and guiding blocks in the ATM, differently abled especially wheelchair users and visually impaired people cannot reach the ATM easily. Wheelchair users cannot enter in the ATM without ramp.
- Width of the tread was found lesser than the standard. So differently abled cannot put their feet properly.
- Door facility in ATMs was found to be lesser than the standards so differently abled especially wheelchair users can not enter the ATMs.

5.1.4. Prototype Development

From the analysis of results obtained, observation and based on the review of literature a set of criteria were developed to design the prototype. Prototype was designed on the basis of problems identified in usage of railway stations during survey and observation. The computer aided prototype of the railway station based on the proposed standards and user's needs developed using Auto CAD 2D and 3D MAX software. Proposed improvement is incorporated in the prototype to create a barrier free environment for differently abled and improve their quality of life.

5.2. CONCLUSION

By virtue of these problems, this research is to help address the difficulties and the stress faced by the differently abled before they access Public places and the facilities in the public places.

The researcher believes that this study has highlighted the problems of differently abled in public places, design of public places- railway stations, bus stations, banks and ATMs, and provided the basic guideline which could lead to easy, safe and accessible public places for the differently abled. From the result of this research, it can be concluded that infrastructural facilities are not designed for easy access for the differently abled in public places- railway stations, bus stations, banks and Atms. Evidently it was also seen that even, if the facilities are provided, they were not as per the standards and due to which the differently abled cannot have easy access to them. Differently abled has to face lots of problems in the public places, due to lack of various basic facilities such as ramp, handrail, separate counter etc. for them, due to which differently abled have to depend on others. Barrier free design will not lessen the quantity of disabilities however can diminish the quantity of people operating under environmental handicapping conditions.

The present research tried to explore the problems of differently abled in accessing the public places and developed a guideline to ensure barrier free environment for them. Independent life is a basic right of any human being and the present study emphasizes provision of accessible public places will enhance their independence and further ensure better quality of life.

5.3. IMPLICATIONS.

- This research is very helpful for differently abled, so that they can make their daily life better and they can become self-dependent.
- The result of the study can be used as guidelines by the designers of public places for differently abled.

- The study will create awareness about facilities required for the differently abled in their public places.
- The guideline can be helpful in preparing policies and rules to facilitate inclusive participation from all sectors of the population.
- The computer aided prototype of railway station can be used as a guideline for enhancement of accessibility for the differently abled.
- The present research emphasizes on problems for the differently abled and further, government policies can be framed to cater to their problems.

5.4. FUTURE DIRECTIONS OF THE RESEARCH

- Research can be extensively carried out in other public areas and accordingly the designs can be developed.
- The prototypes of various other public places can be developed and the same be tested for their efficiency.
- The present research emphasizes on problems for the differently abled and further, government policies can be framed to cater to their problems.