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# Evaluation of Universal Design Principles on Recreational Open Spaces A Case of Adventure Park Kollam

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**ABSTRACT:** This study evaluates how well Adventure Park in Kollam, India, applies Universal Design principles to ensure accessibility for all users. Through field observations, surveys, and interviews, the research reveals that while some Universal Design elements are present, significant improvements are needed in physical accessibility, usability, and safety for individuals with disabilities and older adults. Recommendations include enhancing pathways, play equipment, signage, and facilities to better align with Universal Design. This study highlights the importance of Universal Design in recreational spaces to promote inclusivity and equal access, enhancing the quality of life for all users.

**KEYWORDS:** Universal Design, recreational open spaces, accessibility, inclusivity, Adventure Park Kollam, evaluation.

## I. INTRODUCTION

This research paper is to investigate the effectiveness of universal design principles in promoting recreational open spaces. By evaluating various aspects such as physical accessibility, seating areas, play equipment, signage, inclusivity of recreational features, feedback from diverse user groups, etc. Sensory considerations, such as auditory signals, tactile signage, and lighting, are also evaluated to enhance the accessibility and usability of recreational spaces for individuals with sensory impairments. This study seeks to provide valuable insights into the strengths and weaknesses of existing recreational open spaces.

### Aim and Objectives

The research aim is to identify where universal design principles are implemented in Kollam's adventure park. Assess the effectiveness of these principles for enhancement and propose recommendations to improve inclusivity in recreational spaces for people of diverse ages, abilities, and backgrounds.

- Understanding universal design and its principles.
- Identifying application of universal design principle in adventure park Kollam.
- Understanding different users' perspective.
- Identify areas needing improvement and create suggestions to enhance the inclusivity of recreational space.

## II. LITERATURE REVIEW

Universal Design (UD) ensures environments are accessible to all, regardless of age or ability. It includes principles like Equitable Use, Flexibility, and Low Physical Effort. Recreational spaces often lack full UD implementation, leading to inaccessibility for some users. Studies show benefits of UD in parks, enhancing user satisfaction and inclusivity. However, gaps remain, such as inadequate features for older adults and individuals with disabilities. Ongoing maintenance and staff training are crucial for long-term accessibility. The literature underscores the need for UD in recreational spaces to promote inclusivity and enhance the quality of life for all.



### III. METHODOLOGY

#### Data Collection

- **Field Observations:** Assessed Park layout and accessibility.
- **User Surveys:** Collected visitor feedback on accessibility.
- **Interviews:** Gathered insights from park staff on Universal Design implementation.

#### Evaluation Criteria

- **Accessibility:** Reviewed ease of access for all users.
- **Usability:** Evaluated convenience of park features.
- **Safety:** Examined safety measures.

#### Data Analysis

- **Quantitative:** Analysed survey responses statistically.
- **Qualitative:** Interpreted interviews and open-ended survey answers.

#### 3.1 Sub-sections

You may use sub-sections with titles in italics to give detailed information about various aspects of your study, of the participants or subjects. Also give the criteria of inclusion or exclusion.

### IV. DATA ANALYSIS AND FINDINGS

#### Data Analysis:

- **Quantitative:** Analyzed survey responses for satisfaction with pathways, play areas, signage, and facilities.
- **Qualitative:** Identified common barriers and suggestions from interviews and open-ended survey responses.

#### Findings:

- **Accessibility:** Pathways were uneven; secondary entrances lacked ramps and clear signage.
- **Usability:** Limited inclusive play options; restrooms and seating were inconveniently located; inadequate signage.
- **Safety:** Lacked handrails and non-slip surfaces; staff not fully trained for emergencies involving individuals with disabilities.
- **Overall Satisfaction:** Users enjoyed the park but noted significant accessibility and usability issues.

#### 4.1 Analysis

Add in sub-sections for the various levels and steps of analysis, which lead to your findings.

### V. RESULTS AND DISCUSSION

spaces	Number of principles followed	Score on each element	Percentage on elements
Pedestrian path	3	30	42%
Stairway	1	10	14.28%
Boat deck	4	40	57.14%
Seating	5	50	71.42%



Raisedspace	0		0%
Parking	1	10	14.28%
Opengym	2	20	28.57%
Playarea	2	20	28.57%
toilet	1	10	14.28%
Wateredge	0		0%

**Results**

1. **Accessibility:**
  - a. **Pathways:**65%ofusersreportedissueswithunevenpathways;secondaryentrances lacked ramps and clear signage.
  - b. **Entrances:**40% found secondary entrances in accessible.
2. **Usability:**
  - a. **Play Areas:** Only 10% of play equipment was accessible; more inclusive options needed.
  - b. **Facilities:**45%were dissatisfied with the location of restrooms and seating.
  - c. **Signage:**70%found signage inadequate.
3. **Safety:**
  - a. **Handrails and Non-Slip Surfaces:**60% identified a lack of these features.
4. **OverallSatisfaction:**
  - a. 75% of users wanted significant improvements in accessibility and usability.

**Discussion**

Adventure Park in Kollam shows gaps in Universal Design:

1. **Pathways:** Uneven surfaces and lack of ramps need addressing.
2. **Entrances:** Improve ramp access and signage.
3. **Play Areas:** Add more inclusive equipment.
4. **Facilities:** Relocate restrooms and seating closer to attractions.
5. **Signage:** Enhance visibility and clarity.
6. **Safety:** Add handrails, non-slip surfaces, and train staff in emergency protocols. These improvements will enhance accessibility, usability, and overall user satisfaction.

**VI. CONCLUSIONS AND RECOMMENDATIONS**

TheevaluationofAdventureParkinKollamshowsthatunevenpathways,inaccessibleentrances, and inadequate inclusive play equipment limit accessibility. Poorly located restrooms, unclear signage, and a lack of safety features and staff training further impact user experience.



**Recommendations:**

1. Smooth pathways and add ramps.
2. Upgrade entrances with ramps and clear signage.
3. Install more inclusive play equipment.
4. Relocate restrooms and seating closer to main attractions.
5. Improve signage for better navigation.
6. Add handrails, non-slip surfaces, and train staff in emergency protocols. These changes will improve accessibility, usability, and overall user satisfaction.

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