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ENGLISH MEDIUM VERSUS HINDI MEDIUM KNOWLEDGE: Z-TEST

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ABSTRACT

Introduction: Proper usage and choice of resources in daily routine is an impressive solution to environmental issues and creates an opportunity to have economic edge. Hence knowledge needs to be imparted in such a manner with factual basis to create a dire need of using products and practices in sustainable manner.

Rationale of proposed investigation: Medium of study is an important criterion judged while student's education. Hence this study is carried to see impact of major factor effecting student's knowledge.

Purpose: To find out level, difference and scope of improvement of knowledge of English and hindi medium students.

Research methodology: Primary data collection from English and hindi medium secondary and senior secondary schools of Bikaner city. Cluster sampling technique is used. Two-tailed Z-test and index number methods are used for analysis.

Findings: There is no difference in the knowledge level of students when questions are asked about general phenomenon experienced in life however cumulative result shows knowledge level of english medium students is higher.

Conclusion:

- Comparison between the indices shows that the level of knowledge is higher among english medium students as compared to hindi medium students.
- Knowledge index shows that knowledge of English medium students is satisfactory thus they need to be motivated to practice knowledge in real life.
- Hindi medium students should be taught more about environment.

Implications: Knowledge should be imparted to students about resource utilization of daily use to avoid wastage in daily routines which will show its good impact on living standard.

- Resource utilization techniques are easy to understand and people can be easily convinced as it saves lot of money also.

Limitations: Study is restricted to Bikaner city and findings cannot be generalized to other populations.

Key words: Resource, knowledge, environment

INTRODUCTION

Knowledge is an art of using pretested facts about anything in a fixed pattern however carries powerful meaning in practical terms. So knowledge forms the base of any subject. Anything is considered good if it is proved to be right with factual knowledge and implied thoughts. Hence knowledge needs to be imparted in such a manner with factual basis to create a dire need of using products and practices in sustainable manner. Proper usage and choice of resources in daily routine is an impressive solution to environmental issues and creates an opportunity to have economic edge.

Studies conducted in the concerned field have not reached a conclusion as factors effecting varies as per geographical boundaries. However few factors seem to have a visible impact and medium of study is one of them.

1.1 RATIONALE OF PROPOSED INVESTIGATION

Optimum utilization of resources in daily lives have positive impact on environment and is an attention drawing subject as it benefits one economically in terms of savings. However one of the drawback lies with the lack of knowledge. Nobody wants to waste resources as it costs them economically but as accompanied with lack of optimum utilization techniques results wastage of resources. Such cumulative results are the root cause of environmental issues. Gaining knowledge about resource utilization is an amendment and such opportunities are better in hands of the school students as they are in school. School is a place which gives proper learning environment. Medium of study is an important criterion judged while student's education. Hence this study is carried to see impact of major factor effecting student's knowledge during learning phase. This study is conducted to study the difference in knowledge level of english medium and hindi medium students of Bikaner city about resources of daily use which carry maximum importance in daily lives.

1.2 RESEARCH SCOPE

Bikaner is situated on the fringe of Thar desert hence proper utilization of resources is a must for the survival of town. This study can help us understand level of knowledge of english medium and hindi medium students. This can also work upon dimensions of improvement in case of knowledge.

1.3 OBJECTIVES

- To find out the level of knowledge of english medium and hindi medium students.
- To find out the difference in the knowledge level of english medium and hindi medium students.
- To find out scope of improvement.

1.4 RESEARCH METHODOLOGY

- **Geographical Area of Investigation:** Bikaner city of Rajasthan state, India
- **Organization/ Department where the work is to be done:** English and hindi medium secondary and senior secondary schools.

- **Target population:** Youths of age group 14 to 20 are targeted for the study as they have studied environment in their course curriculum.
- **Data type:** Primary data collection using pre-tested questionnaire
- **Sample Size:**541 students
- **Sampling technique:** Cluster sampling
- **Data analysis**: Z TEST FOR 2 POPULATION PROPORTIONS
  Significance level 0.05
  Two-tailed test

1.5 HYPOTHESIS

H_0: There is no difference in the knowledge levels of english medium and hindi medium students

H_1: There is difference in the knowledge levels of english medium and hindi medium students

1.6 ANALYSIS

1.6.1 Z-TEST

1(a) Electricity reduction- fans/lights off

- Proportion of individuals from English medium students 44
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 385
- Total number of hindi medium students 492

- The Z-Score is 1.9019. The p-value is 0.05744. The proportion of responses for english medium students is 0.898. The proportion for hindi medium students is 0.783.
- The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

1(b) Electricity reduction- L.E.D.

- Proportion of individuals from english medium students 40
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 225
- Total number of hindi medium students 492

- The Z-Score is 4.7941. The p-value is 0. The proportion of responses for english medium students is 0.816. The proportion for hindi medium students is 0.457.
- The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

1(c) Electricity reduction- solar appliances

- Proportion of individuals from english medium students 33
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 206
- Total number of hindi medium students 492

➢ The Z-Score is 3.4247. The p-value is 0.00062. The proportion of responses for english medium students is 0.673. The proportion for hindi medium students is 0.419.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

1(d) Electricity reduction- power saving ratings

- Proportion of individuals from english medium students 33
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 180
- Total number of hindi medium students 492

➢ The Z-Score is 4.203. The p-value is 0. The proportion of responses for english medium students is 0.673. The proportion for hindi medium students is 0.366.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

2(a) Gas saved- burner off

- Proportion of individuals from english medium students 39
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 325
- Total number of hindi medium students 492

➢ The Z-Score is 1.9257. The p-value is 0.0536. The proportion of responses for english medium students is 0.796. The proportion for hindi medium students is 0.661.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

2(b) Gas saved- replace rubber tube

- Proportion of individuals from english medium students 29
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 228
- Total number of hindi medium students 492

➢ The Z-Score is 1.7167. The p-value is 0.08544. The proportion of responses for english medium students is 0.592. The proportion for hindi medium students is 0.463.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

2 (c) Gas saved- cooker

- Proportion of individuals from english medium students 25
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 272
- Total number of hindi medium students 492

➢ The Z-Score is -0.5721. The p-value is 0.56868. The proportion of responses for english medium students is 0.51. The proportion for hindi medium students is 0.553.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

2(d) Gas saved- low flame

- Proportion of individuals from english medium students 21
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 170
- Total number of hindi medium students 492

➢ The Z-Score is 1.1599. The p-value is 0.24604. The proportion of responses for english medium students is 0.429. The proportion for hindi medium students is 0.346.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

2(e) Gas saved- solar cooker

- Proportion of individuals from english medium students 32
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 190
- Total number of hindi medium students 492

➢ The Z-Score is 3.6218. The p-value is 0.0003. The proportion of responses for english medium students is 0.653. The proportion for hindi medium students is 0.386.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

3(a) Petrol/diesel saved- no vehicle for small distance

- Proportion of individuals from english medium students 42
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 379
- Total number of hindi medium students 492

➢ The Z-Score is 1.3949. The p-value is 0.16452. The proportion of responses for english medium students is 0.857. The proportion for hindi medium students is 0.77.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

3(b) Petrol/diesel saved- public transport

- Proportion of individuals from english medium students 31
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 229
- Total number of hindi medium students 492

➢ The Z-Score is 2.234. The p-value is 0.02574. The proportion of responses for english medium students is 0.633. The proportion for hindi medium students is 0.465.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

3(c) Petrol/diesel saved- vehicle sharing

- Proportion of individuals from english medium students 16
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 92
- Total number of hindi medium students 492

➢ The Z-Score is 2.3303. The p-value is 0.0198. The proportion of responses for english medium students is 0.327. The proportion for hindi medium students is 0.187.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

- **3(d) Petrol/diesel saved- service of engine**
- Proportion of individuals from english medium students 28
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 140
- Total number of hindi medium students 492

➢ The Z-Score is 4.1387. The p-value is 0. The proportion of responses for english medium students is 0.571. The proportion for hindi medium students is 0.285.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

3(e) Petrol/diesel saved- engine off at signal

- Proportion of individuals from english medium students 39
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 330
- Total number of hindi medium students 492

➢ The Z-Score is 1.7946. The p-value is 0.07346. The proportion of responses for english medium students is 0.796. The proportion for hindi medium students is 0.671.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

4(a) Tree plantation- forest department

- Proportion of individuals from english medium students 23
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 300
- Total number of hindi medium students 492

➢ The Z-Score is -1.9104. The p-value is 0.05614. The proportion of responses for english medium students is 0.469. The proportion for hindi medium students is 0.61.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

4(b) Tree plantation- municipal corporation

- Proportion of individuals from english medium students 21
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 97
- Total number of hindi medium students 492

➢ The Z-Score is 3.7408. The p-value is 0.00018. The proportion of responses for english medium students is 0.429. The proportion for hindi medium students is 0.197.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

4© Tree plantation- corporate entities

- Proportion of individuals from english medium students 6
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 55
- Total number of hindi medium students 492

➢ The Z-Score is 0.225. The p-value is 0.82588. The proportion of responses for english medium students is 0.122. The proportion for hindi medium students is 0.112.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

4(d) Tree plantation- NGOs

- Proportion of individuals from english medium students 11
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 82
- Total number of hindi medium students 492

➢ The Z-Score is 1.0231. The p-value is 0.30772. The proportion of responses for english medium students is 0.224. The proportion for hindi medium students is 0.167.

➢ The H_0 is accepted means that the difference in the knowledge level of the english medium and hindi medium students is not significant.

4(e) Tree plantation- each individual

- Proportion of individuals from english medium students 46
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 392
- Total number of hindi medium students 492

➢ The Z-Score is 2.4149. The p-value is 0.01596. The proportion of responses for english medium students is 0.939. The proportion for hindi medium students is 0.797.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

5(a) Green products- less damage on production

- Proportion of individuals from english medium students 42
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 245
- Total number of hindi medium students 492

➢ The Z-Score is 4.8043. The p-value is 0. The proportion of responses for english medium students is 0.857. The proportion for hindi medium students is 0.498.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

5(b) Green products- less energy consumption

- Proportion of individuals from english medium students 34
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 210
- Total number of hindi medium students 492

➢ The Z-Score is 3.5826. The p-value is 0.00034. The proportion of responses for english medium students is 0.694. The proportion for hindi medium students is 0.427.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

5© Green products- less pollution

- Proportion of individuals from english medium students 34
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 229
- Total number of hindi medium students 492

➢ The Z-Score is 3.0509. The p-value is 0.00228. The proportion of responses for english medium students is 0.694. The proportion for hindi medium students is 0.465.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

5(d) Green products- less harm to health

- Proportion of individuals from english medium students 31
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 221
- Total number of hindi medium students 492

➢ The Z-Score is 2.4552. The p-value is 0.0139. The proportion of responses for english medium students is 0.633. The proportion for hindi medium students is 0.449.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

5(e) Green products- recycle/biodegradable

- Proportion of individuals from english medium students 34
- Total number of english medium students 49
- Proportion of individuals from hindi medium students 205
- Total number of hindi medium students 492

➢ The Z-Score is 3.7264. The p-value is 0.0002. The proportion of responses for english medium students is 0.694. The proportion for hindi medium students is 0.417.

➢ The H_0 is rejected means that the difference in the knowledge level of the english medium and hindi medium students is significant.

1.6.2 KNOWLEDGE INDEX

Knowledge Index (KI) = [{(∑Scores for different items) ÷ Number of respondents} ÷ Number of questions] × 100

$KI_{English\ medium}$ = 734/49

=14.9795/24

=0.6241*100

=62.4

$KI_{Hindi\ medium}$ = 5387/492

= 10.9491/24

= 0.4562*100

=45.6

1.7 RESULT

1.7.1 Z-test result summary

	Questions	Analysis shows that the difference in the knowledge levels of the english medium and hindi medium students
1	Electricity reduction	
1a	Fans/lights off	Not significant
1b	L.E.D.	Significant
1c	Solar appliances	Significant
1d	Power saving ratings	Significant
2	Gas saved	
2a	Burner off	Not significant
2b	Replace rubber tube	Not significant
2c	Cooker	Not significant
2d	Low flame	Not significant
2e	Solar cooker	Significant
3	Petrol/diesel saved	
3a	No vehicle for small distance	Not significant
3b	Public transport	Significant
3c	Vehicle sharing	Significant
3d	Service of engine	Significant
3e	Engine off at signal	Not significant
4	Tree plantation	
4a	forest department	Not significant
4b	municipal corporation	Significant
4c	corporate entities	Not significant
4d	NGOs	Not significant
4e	Each individual	Significant
5	Green products	
5a	Less damage on production	Significant
5b	Less energy consumption	Significant
5c	Less pollution	Significant
5d	Less harm to health	Significant
5e	Recycle/biodegradable	Significant

1.7.2 Comparison between the indices shows that the level of knowledge is higher among english medium students as compared to hindi medium students.

1.8 CONCLUSION

- There is no difference in the knowledge level of students when asked about general phenomenon experienced in life however cumulative result shows knowledge level of english medium students is higher.
- Knowledge index shows that knowledge of english medium students is satisfactory thus they need to be motivated to practice knowledge in real life.
- Hindi medium students should be taught more about environment.

1.9 IMPLICATIONS

- Knowledge should be imparted to students about resource utilization of daily use to avoid wastage in daily routines which will show its good impact on living standard.
- Resource utilization techniques are easy to understand and people can be easily convinced as it saves lot of money also.

1.10 LIMITATIONS

- This study is constrained by geographical area, data collected is restricted to Bikaner city hence result cannot be generalized to other locations due to varied demographic factors.
- These findings cannot be generalized for other populations.

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Questionnaire

Personal details

1. Student's Name: _____
2. School_____ 3. Class_____
4. Age_____ 5. Gender: M/ F_____6. Domicile: Rural / Urban_____

Questions about Knowledge: Multiple choices

(Please tick the appropriate options)

1. Domestic consumption of electricity may be reduced by:
घर में बजिली की खपत कैसे कम की जा सकती है?

a) Switching off fans/ lights/AC/ TV etc when not in use
पँखे / रोशनी / ए.सी. / टीवी आदजिब उपयोग नहीं हो रहे बंद रखने से।

b) Using L.E.D. lights एल.ई.डी. रोशनी के उपयोग

c) Using solar water heaters सौर वॉटर हीटर के उपयोग

d) Using domestic appliances with power saving ratings (five star, three stars etc)
बजिली की बचत वाली रेटगि के घरेलू उपकरणों का उपयोग।

2. Cooking gas can be saved by:
रसोई गैस को बचाने के कौन से उपाय है?

a) Keeping the burner off when not in use
उपयोग में नहीं है जब बर्नर बंद रखते हुए ।

b) Timely replacing the old and worn out rubber tube
समय पर पुराने रबर ट्यूब बदलें।

c) Use of pressure cooker for cooking
खाना पकाने के लएि कुकर का प्रयोग करें ।

d) Keeping the flame low while cooking
कम लौ पर खाना पकायें।

e) Using solar cookers at home
घर पर सौर कुकर का उपयोग ।

3. Petrol/Diesel may be saved by:
पेट्रोल / डीजल बचाने के कौन से उपाय है?