



EVALUATING THE USE OF GEO-KITS IN GOVERNMENT HIGH SCHOOLS: AN EMPIRICAL STUDY OF KOPPAL DISTRICT

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Abstract

The present study explores the use of teaching learning aids in Geography learning in Government High schools of Koppal district, with the aim of strengthening geography laboratory facilities and enhancing the teaching learning process. A content analysis of Government high school textbooks and teachers' handbooks identified essential topics in physical geography, categorized into nine domains: climatology, hydrology, soil geography, economic geography, cartography, remote sensing, and population geography. Based on this analysis, key teaching learning aids including graphic tools, audiovisual aids, 3D models, library resources, planned instructional materials, and laboratory equipment were listed. To examine the practical usage of these aids, a structured questionnaire was administered to 101 Social Science teachers across four taluks of Koppal district: Koppal, Kushtagi, Gangavathi, and Yelburga. The questionnaire focused on the types, frequency, and effectiveness of instructional materials such as globes, maps, television, tape recorders, radio, and charts in Geography instruction. Data were analyzed using various statistical techniques to derive meaningful interpretations. The findings are expected to provide insights into the effective integration of teaching aids, thereby promoting conceptual understanding, spatial awareness, and more meaningful learning experiences for students in Geography.

Key words: Teaching learning aids, Laboratory, Equipment, Interpretations, and Techniques.

1. Introduction:

Geography, encompassing its subject matter, definitions, classifications, and research methods, forms the foundation for understanding the Earth's physical and human environment. As one of the oldest natural and social sciences, geography has a rich history spanning over 2,500 years. From the earliest stages of human civilization, people observed natural features, identified their locations, and developed geographic knowledge. The study of geography was essential for survival, navigation, agriculture, and understanding the natural environment. Hence, the history of geography is deeply interwoven with the evolution of human civilization. Over time, continuous observation, exploration, adaptation, and systematic research have shaped modern geography, which continues to evolve with new technologies and scientific approaches.

Since the beginning of civilization, teachers have been regarded as vital social reformers, contributing to the intellectual, moral, and social development of communities. They are often described as the backbone of a progressive and enlightened society. A competent and responsible teacher, equipped with effective pedagogical skills, teaching standards, and professional values, not only imparts knowledge but also serves as a role model, influencing students' attitudes, values, and learning approaches.

In ancient educational practices, geography teachers or gurus relied on direct experiences and naturally available resources to teach concepts such as landforms, climate, and natural resources. With the advancement of civilization and technology, teaching methods and instructional aides have undergone significant transformation. Initially, textbooks were limited to textual content, often lacking visual appeal, which restricted students' understanding of spatial and physical phenomena. Over time, the incorporation of maps, globes, diagrams, charts, and colored illustrations has made geography teaching more engaging and effective. Such visual materials serve as powerful teaching aids, enabling learners to comprehend complex geographical processes and spatial relationships more clearly.

Teaching methods and teaching aids are inseparable components of the teaching-learning process. While teaching methods refer to the strategies and approaches adopted by teachers to present content, teaching aids constitute the tools and resources that support, enrich, and clarify the learning experience. In Geography learning, aids such as maps, globes, models, atlases, and audio-visual media not only make learning more interactive but also simplify abstract concepts, enhance spatial understanding, and foster active participation among students. Effective use of these aids significantly improves conceptual clarity and strengthens the overall quality of Geography learning, particularly at the Government high school level.

Despite their recognized importance, the systematic use of teaching aids in geography classrooms remains inconsistent. Understanding how teachers utilize these resources and the impact on students' learning is essential for improving instructional quality. Therefore, the present study aims to examine the use of geography teaching aids in Government high schools of Koppal district, focusing on the types of aids employed, their frequency of use, and their effectiveness in enhancing students' conceptual understanding and spatial awareness. Insights from this study are expected to inform strategies for the effective integration of teaching aids, thereby strengthening Geography learning and promoting more meaningful learning experiences for students.

1.1 Study Area:

The Koppal district came to existence on 1st April 1998 by carving out of erst-while Raichur district of Karnataka with a geographical area of 5559 sq. km, located in the northern part of the state with four taluks namely, Koppal, Yelburga Gangavati, and Kustagi. It lies between north latitudes 15° 09' and 16° 01' and east longitudes 75° 46' and 76° 48'. It is one of the backward districts in the northern part of the state and situated in the Hyderabad Karnataka region. The district has 588 inhabited and 40 uninhabited villages with a total population of 1391292, as per 2011 census. The area falls in the Tugabhadra sub basin of the Krishna basin. Tugabhadra River flows in the southern boundary of the district in north easterly direction. Koppal district is bordered by Bagalkot district in the north, Raichur in the east, Bellary in the south and Gadag district in the West.

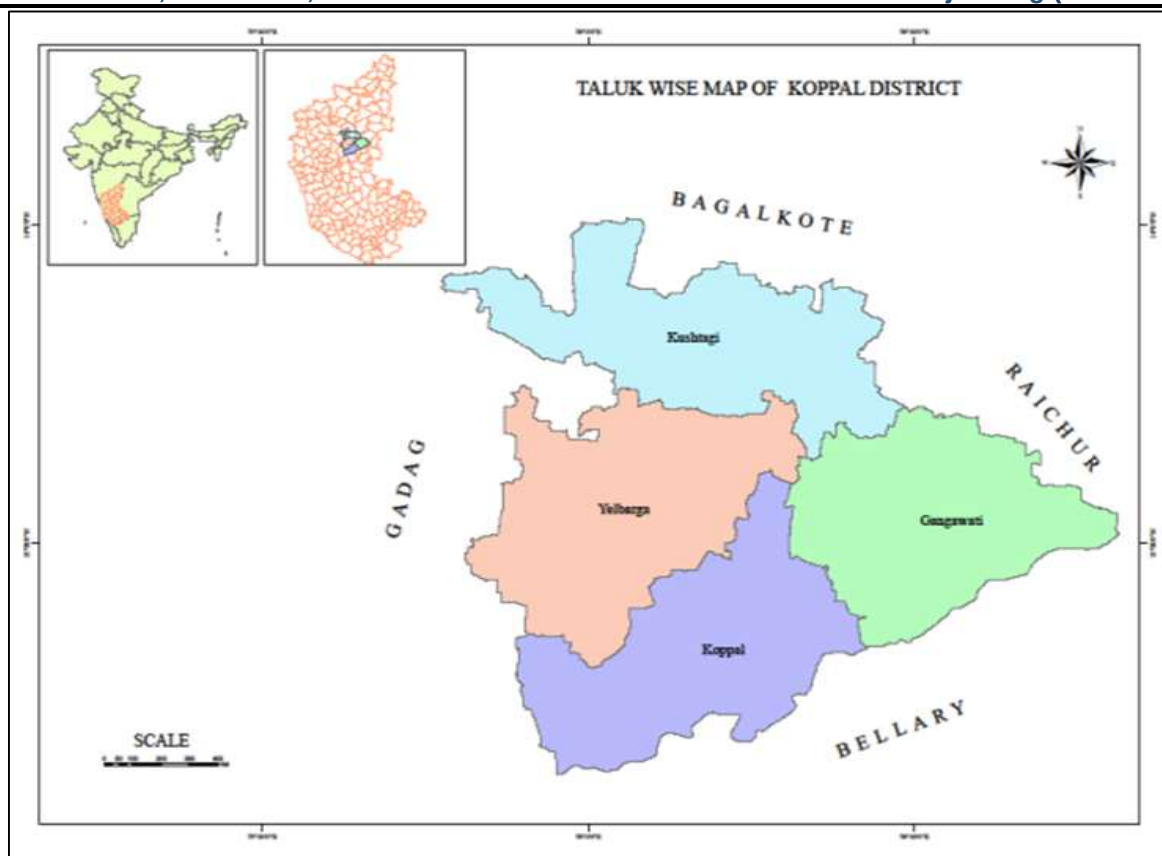


Fig. 1

1.2 Objectives

1. To analyze how natural environmental differences lead to varied human problems.
2. To develop students' ability to comprehend the economic and cultural interrelationships of regions and people.
3. To foster awareness of the value of natural resources and the need for their sustainable use.
4. To understand the significance of variations in human activities and promote effective use of leisure time.
5. To enhance international awareness and global perspective..
6. To gather geographical information through maps, graphs, diagrams, images, and charts

1.3 Data Collection

The present study involves the collection of both primary and secondary data.

1.3.1 Primary Data:

Primary data were collected from Social Science teachers working in government high schools across four taluks of Koppal district, Koppal, Kushtagi, Gangavathi, and Yelburga. A well-structured questionnaire was designed to obtain relevant information and suggestions regarding the use and objectives of Geo-kits, as well as the utilization of various teaching aids such as radios, tape recorders, maps, and different geographical models in classroom teaching.

1.3.2. Secondary Data:

Secondary data were obtained from both published and unpublished sources, supported by relevant statistical information. The data were gathered and analyzed from a variety of sources including the internet,

research papers, annual reports published by central and state governments and private organizations, daily, monthly, and quarterly journals, institutional reports, university research publications, and unpublished theses. These sources provided valuable insights that complemented the primary data and contributed to a comprehensive understanding of the research focus.

1.3.3. Methodology:

The present study was conducted in Koppal district to examine the use of various teaching aids in the teaching of Geography. A structured questionnaire was prepared and administered to collect primary data from 101 Social Science teachers working in government high schools across four taluks of the district, Koppal, Kushtagi, Gangavathi, and Yelburga.

The questionnaire focused on the teachers' use of different instructional materials such as globes, maps, television, tape recorders, radio, charts, and other teaching aids in Geography instruction. The collected data were analyzed using various statistical techniques to derive meaningful interpretations and conclusions.

2. Selected Geo- Kites

2.1 Globes: Globes are three-dimensional representations of the Earth, providing an accurate view of continents, oceans, and geographical features. They help students understand global relationships, latitude, longitude, and scale. In research, globes serve as essential teaching aids, enhancing spatial thinking and improving comprehension of physical and political geography.

2.2 Maps: Maps are two-dimensional visual representations of geographical areas, displaying physical, political, or thematic information. They help in understanding locations, distances, directions, and spatial patterns. In research, maps are crucial for analyzing geographic data, supporting field studies, and aiding students in interpreting regional, national, and global geographic phenomena effectively.

2.3 Television: Television serves as an audio-visual teaching aid, broadcasting documentaries, news, and educational programs on geography. It engages students through moving images, enhancing understanding of natural phenomena, cultures, and environmental issues. In research, television provides real-time information and case studies, supporting experiential learning and improving retention of geographic knowledge.

2.4 Radio: Radio broadcasts educational programs, weather reports, and geographic updates, reaching students in remote areas. It fosters listening skills and provides access to global information. In research, radio acts as a medium to gather local information, raise awareness about environmental issues, and supplement conventional classroom teaching with auditory learning experiences.

2.5 Charts: Charts are visual tools representing data, processes, or geographic information through diagrams, graphs, and tables. They simplify complex concepts like climate patterns, population distribution, and economic activities. In research, charts aid in data analysis, interpretation, and presentation, making it easier for students and researchers to grasp spatial and statistical relationships.

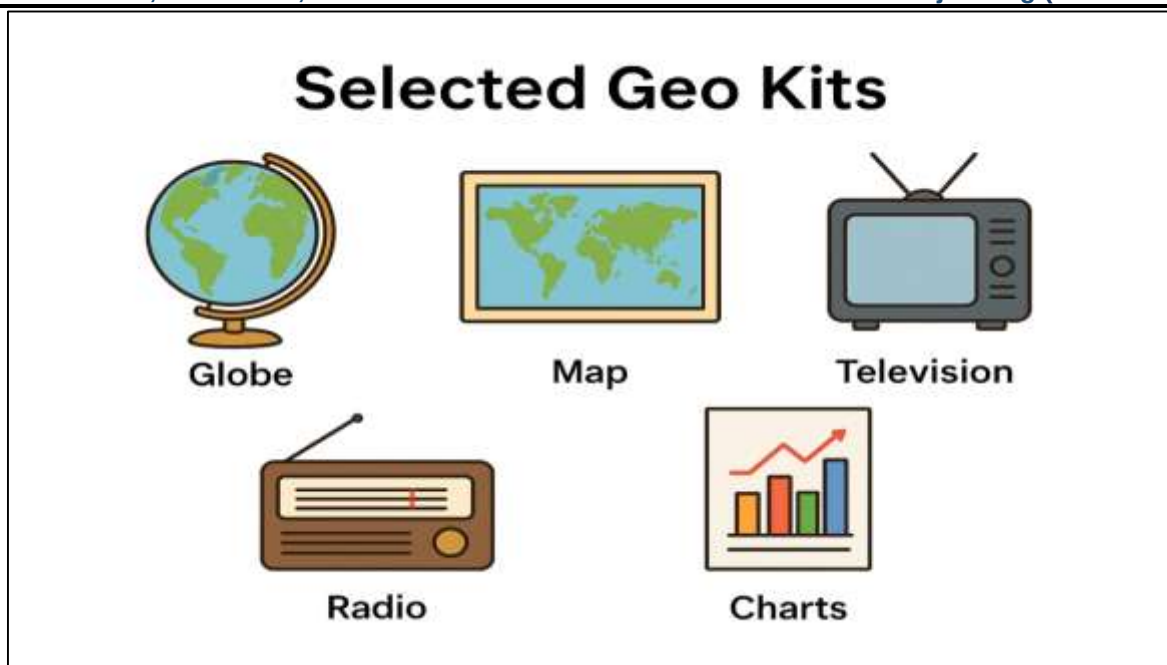


Fig. 2

3. Result and Discussion

3.1. Teaching Aids in Geography at Schools:

A total of 101 teachers participated in the study, all of whom are teaching Social Science at government high schools in different taluks of Koppal district. The respondents provided valuable information regarding the availability and use of geography teaching aids in their respective schools. Among them, 79 teachers (78%) reported that their schools possessed geography teaching aids, while 22 teachers (22%) stated that such aids were not available. This distribution shows that the majority of teachers have access to teaching aids for geography, which supports effective teaching and learning. However, the variation across taluks where Yelburga and Gangavathi have more aids, Kushtagi an average level, and Koppal fewer indicates unequal resource distribution within the district.

3.2. Most Frequently Used Teaching Aids

Table 1 and Figure 1 present a detailed description of the most frequently used teaching aids in geography instruction. Out of the total 101 respondents, a majority of 64 teachers reported using maps, followed by 19 teachers using videos, 16 teachers using globes, and 2 teachers who employed various models illustrating geographical features for classroom teaching. An analysis based on taluk-wise distribution reveals that Yelburga taluk ranks first in the use of maps, while Gangavathi ranks last. However, in the use of globes, Gangavathi taluk shows the highest usage, whereas the remaining three taluks Koppal, Kushtagi, and Yelburga use them less frequently. This finding indicates that teachers across the district prefer visual aids such as maps and videos for geography teaching, as they are more accessible and effective in facilitating students' understanding of spatial and environmental concepts.

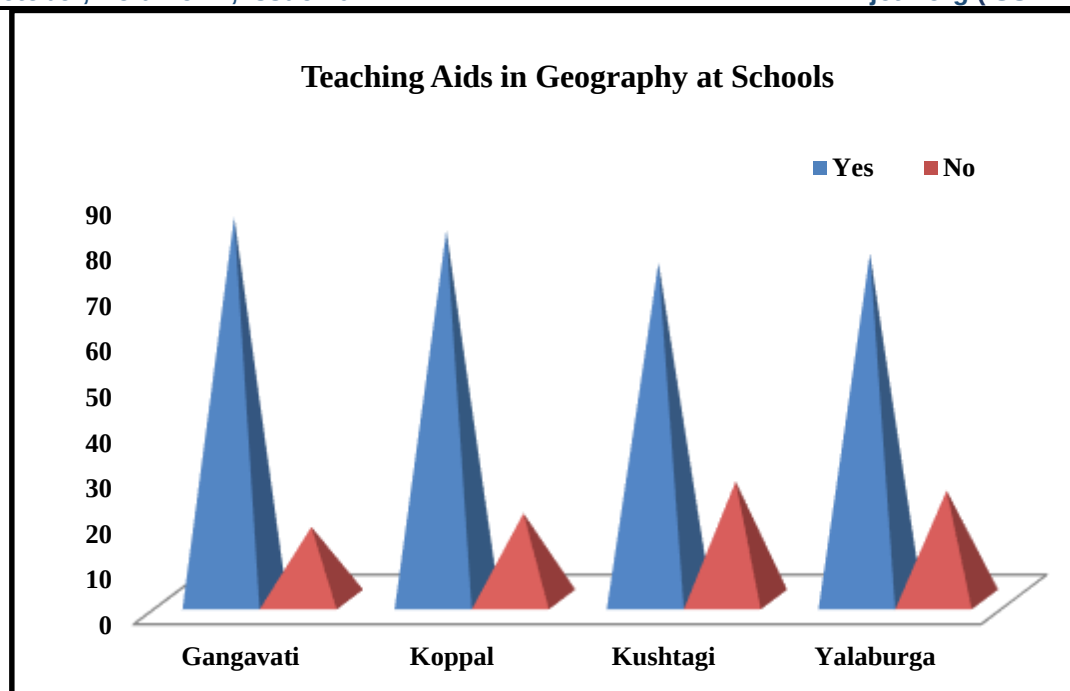


Fig. 3

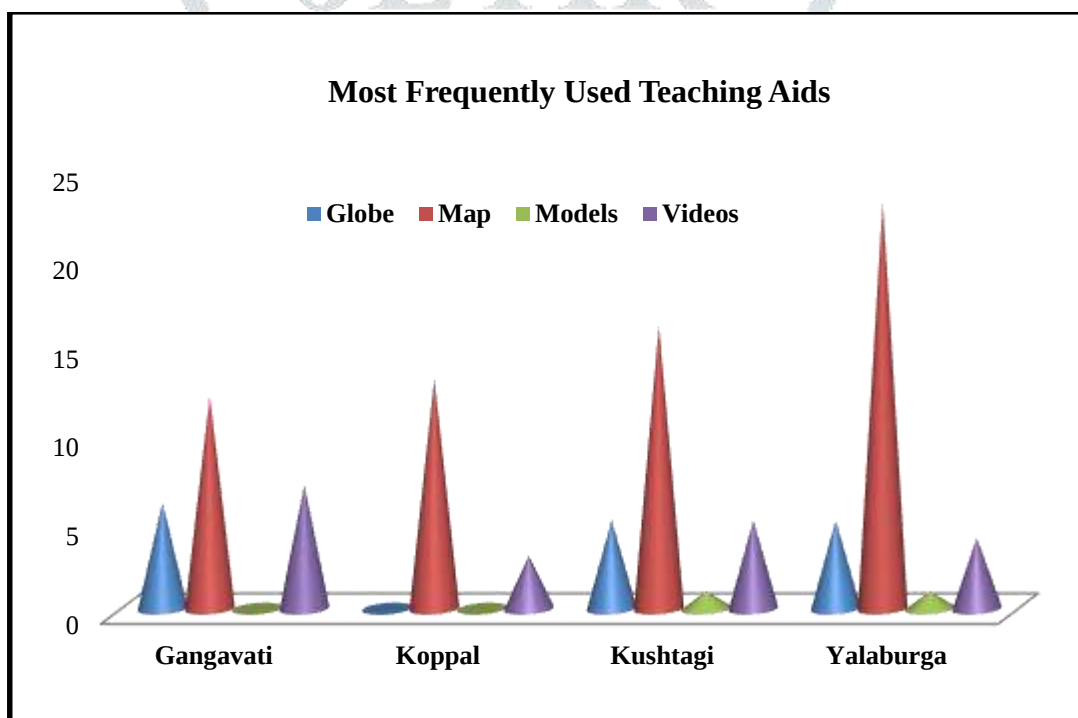


Fig. 4

Table 1

Sl.No	Taluk	Total Respondents	Teaching Aids in Geography at Schools				Most Frequently Used Teaching Aids			
			Yes	%	No	%	Globe	Map	Models	Videos
1	Gangavati	25	21	84	4	16	6	12	0	7
2	Koppal	16	13	81	3	19	0	13	0	3
3	Kushtagi	27	20	74	7	26	5	16	1	5
4	Yalaburga	33	25	76	8	24	5	23	1	4
Total		101	79	78	22	22	16	64	2	19

Sources: Primary Data

4. Use of Globes as Teaching Aids in Government High Schools

Globe, as three-dimensional spherical models, are essential tools in Geography learning. They accurately represent continents, oceans, and countries with correct relative sizes, shapes, latitudes, and longitudes. Mounted on an axis for free rotation, globes allow students to visualize the Earth's rotation and understand spatial relationships between locations. Their interactive and visual nature makes them invaluable for exploring the world.

4.1 Promotion of Interactive Learning:

Globe facilitate active learning by enabling students to touch, rotate, and explore the model, promoting engagement and enhancing memory retention. In a survey conducted among 101 social science teachers in Koppal district, 98 (97%) reported that globes significantly promote interactive learning, while 3 (3%) felt they were less effective in this regard.

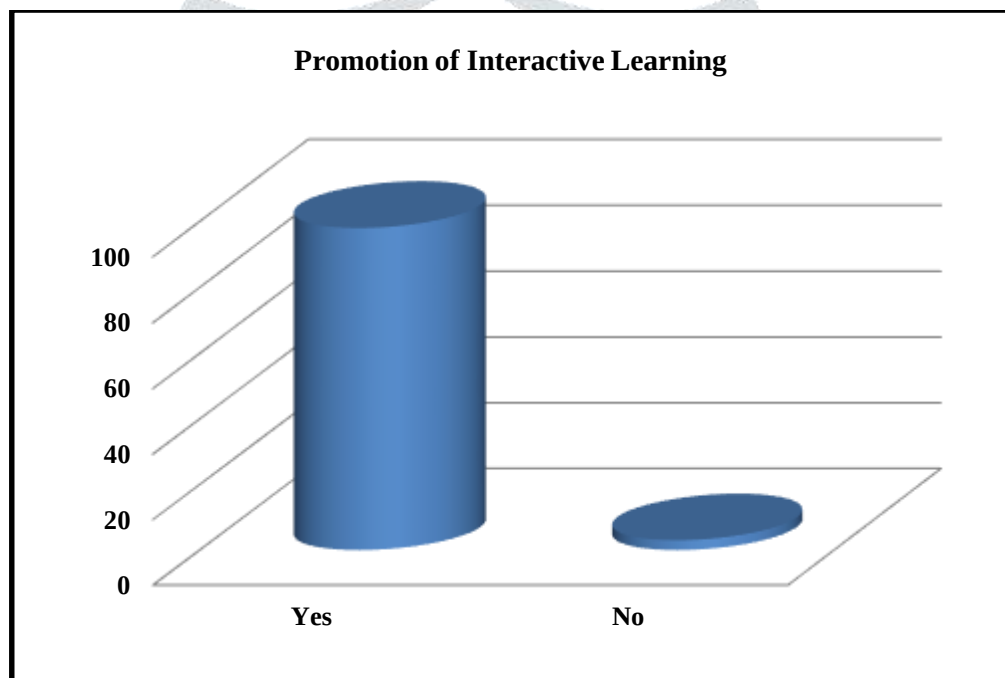


Fig.5

4.2. Representation of Reality and Perspective

Globe offer a three-dimensional representation of the Earth that flat maps cannot provide, allowing students to comprehend geographical features and spatial relationships effectively. Taluk-wise analysis indicated that 30 teachers from Yelburga taluk gave highly positive responses, whereas 16 teachers from Koppal taluk expressed comparatively negative feedback, reflecting minor variations in perception.

4.3. Problem-Solving in Learning:

Globes also aid in problem-solving by helping students visualize geographical relationships, understand regional concepts, and analyze real-world issues. This supports critical thinking and inquiry-based learning. Among the surveyed teachers, 96 (95%) confirmed that globes are effective in addressing students' learning challenges, while 5 (5%) disagreed.

Overall, globe are widely recognized as effective teaching aids for enhancing interactive, visual, and problem-solving learning in geography. Their three-dimensional representation of the Earth and ability to

demonstrate spatial relationships make them superior to conventional flat maps. Minor differences across taluks suggest that teacher familiarity and pedagogical practices can influence their perceived effectiveness.

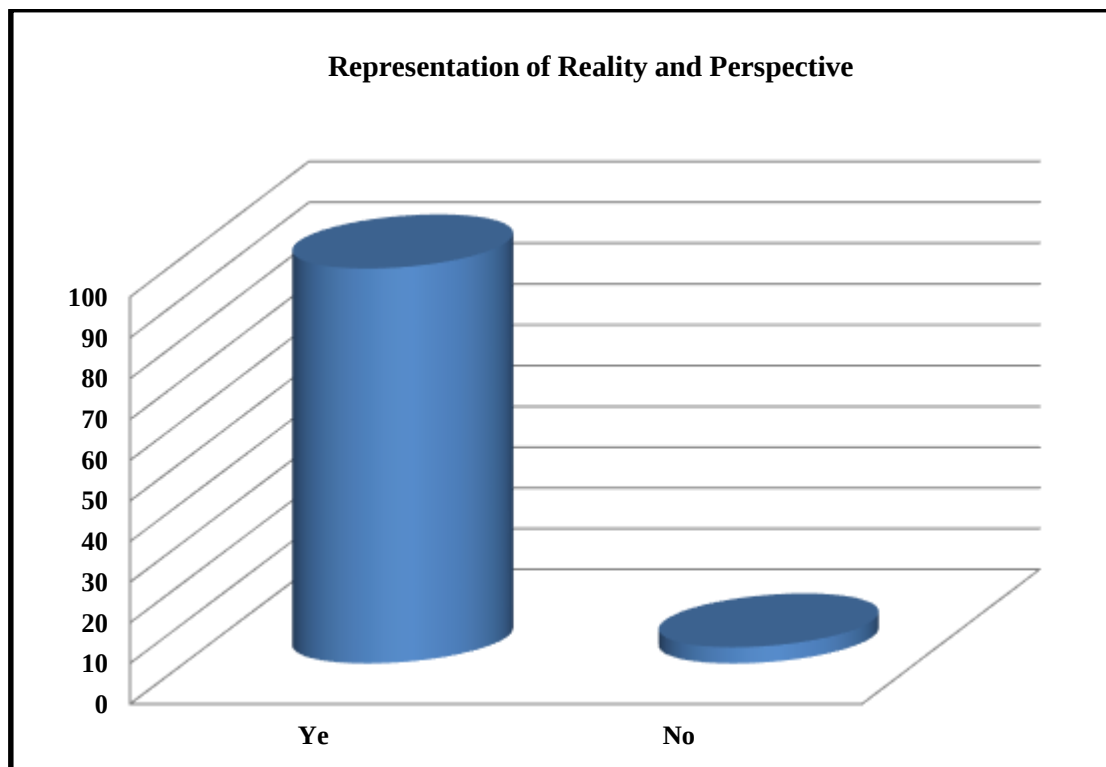


Fig. 6

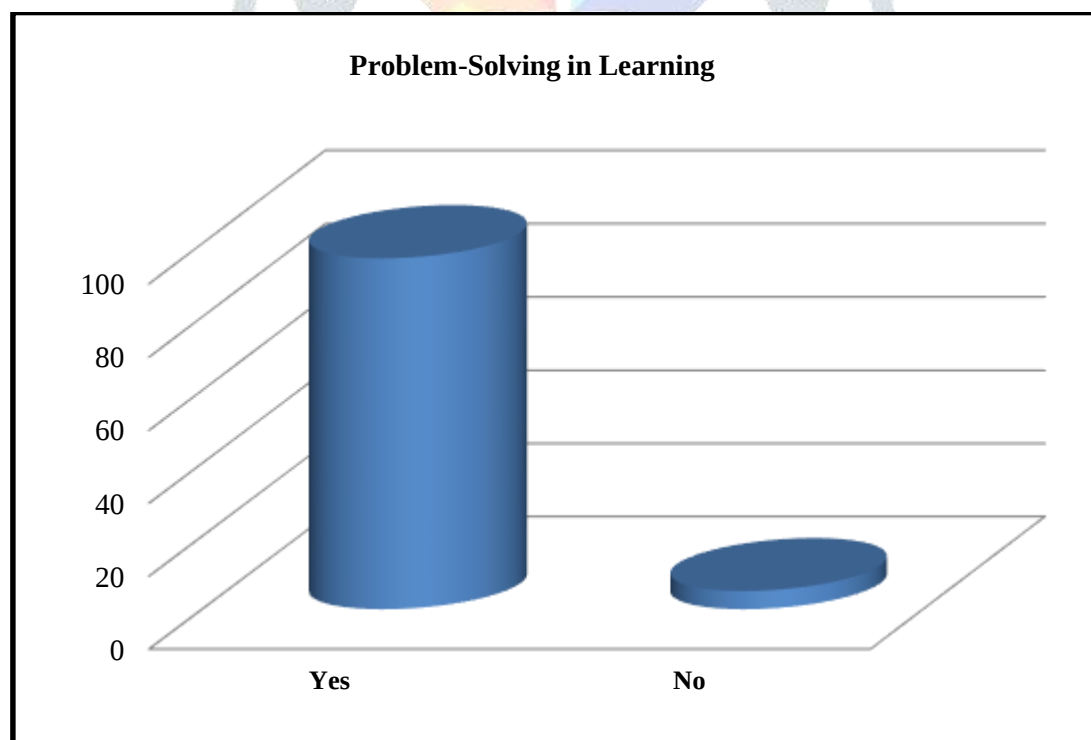


Fig. 7

Table 2

Sl.No	Taluk	Total Respondents	Promotion of Interactive Learning		Representation of Reality and Perspective		Problem-Solving in Learning	
			Yes	No	Yes	No	Yes	No
1	Gangavati	25	25	0	25	0	23	2
2	Koppal	16	16	0	16	0	16	0
3	Kushtagi	27	26	1	26	1	27	0
4	Yalaburga	33	31	2	30	3	30	3
Total		101	98	3	97	4	96	5

Sources: Primary Data

5. Maps as Teaching Aids in Government High Schools

At the Government high school level, maps function as highly effective teaching aids that enhance the teaching–learning process. They promote regional reasoning, visual understanding, and problem-solving abilities among students. Moreover, maps help learners grasp complex concepts, spatial relationships, and locational awareness with greater clarity. They also serve as valuable tools for exploring a range of disciplines including geography, history, social studies, and mathematics, thereby supporting interdisciplinary learning.

2.6 Representation from Abstract to Concrete Concepts

The use of maps enables students to transition from abstract ideas to concrete understanding by providing visual and spatial representations of otherwise intangible phenomena. Among the surveyed teachers, 33 responded positively regarding the role of maps in facilitating conceptual clarity, while only 2 reported that maps do not effectively represent concrete concepts. Table 3 illustrates the taluk-wise distribution of responses related to the representation of abstract and concrete concepts. Gangavati taluk recorded the highest number of positive responses (25), indicating strong use of maps for conceptual representation, whereas Koppal taluk had the lowest number of responses (15), and reflecting relatively limited application.

This analysis underscores the pedagogical importance of maps as essential geographic tools that bridge the gap between theoretical knowledge and practical understanding in Geography learning.

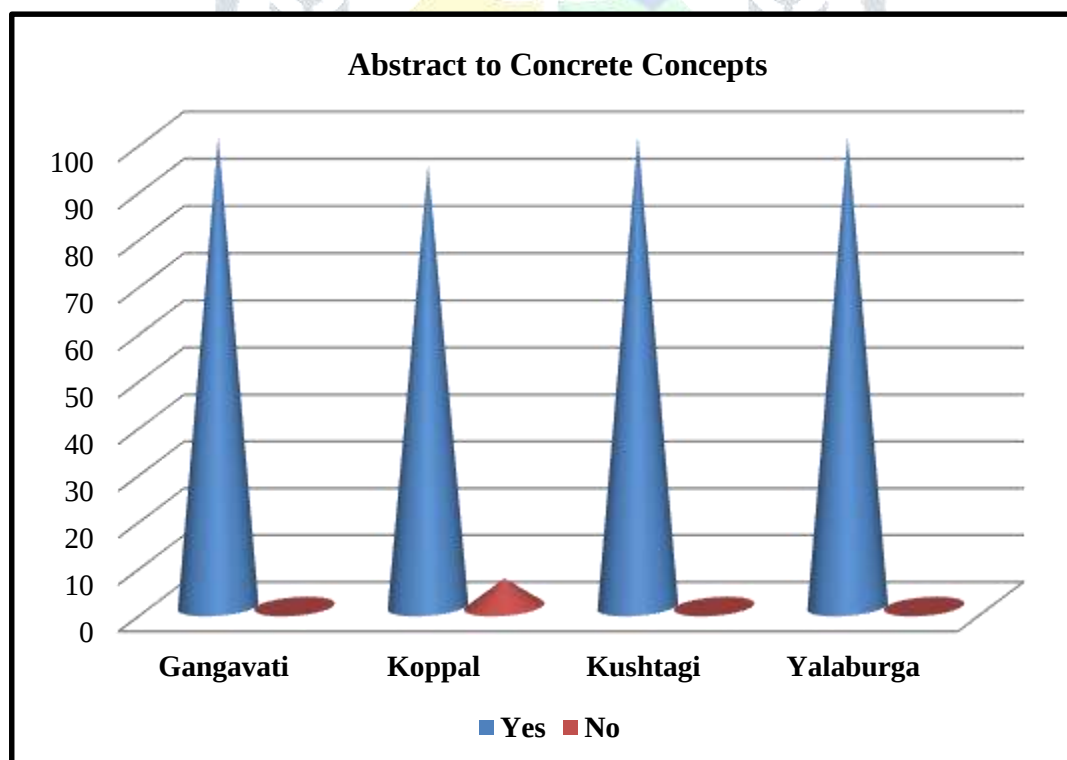


Fig.8

Table 3

Sl.No	Taluk	Total Respondents	Maps, as learning tools, provide a representation of abstract concepts through concrete forms			
			Yes	%	No	%
1	Gangavati	25	25	100	0	0
2	Koppal	16	15	94	1	6
3	Kushtagi	27	27	100	0	0
4	Yalaburga	33	33	100	0	0
Total		101		99	2	1

Sources: Primary Data

2.7 Development of Regional Thinking among Students through the Use of Maps

The use of maps as an instructional tool in geography classrooms plays a crucial role in nurturing students' regional thinking abilities. Maps enable learners to visualize and interpret spatial relationships, geographical features, and regional variations such as area, size, climatic conditions, soil distribution, and changes in physical characteristics. This visual representation bridges the gap between abstract geographical concepts and their concrete realities, fostering analytical and critical thinking about spatial patterns and environmental diversity.

According to the data presented in *Table 4*, out of 101 teachers surveyed, 98% agreed that the use of maps significantly contributes to the development of regional thinking among students, while only 2% expressed a contrary view. A taluk-wise analysis further reveals that a higher proportion of teachers in Gangavathi taluk acknowledged the positive influence of maps in enhancing students' regional awareness and reasoning. Likewise, 15 teachers from Koppal taluk, 31 from Kushtagi taluk, and 32 from Yelburga taluk also confirmed that maps are effective tools in promoting students' understanding of regional interrelationships and spatial reasoning.

These findings highlight the pedagogical importance of incorporating map-based learning in Geography learning. By engaging with maps, students not only acquire factual knowledge but also develop cognitive skills necessary for interpreting geographical information, understanding regional diversity, and making informed spatial decisions. Therefore, the integration of maps into classroom teaching should be emphasized as an essential component in cultivating scientific and regional thinking among Government high school students.

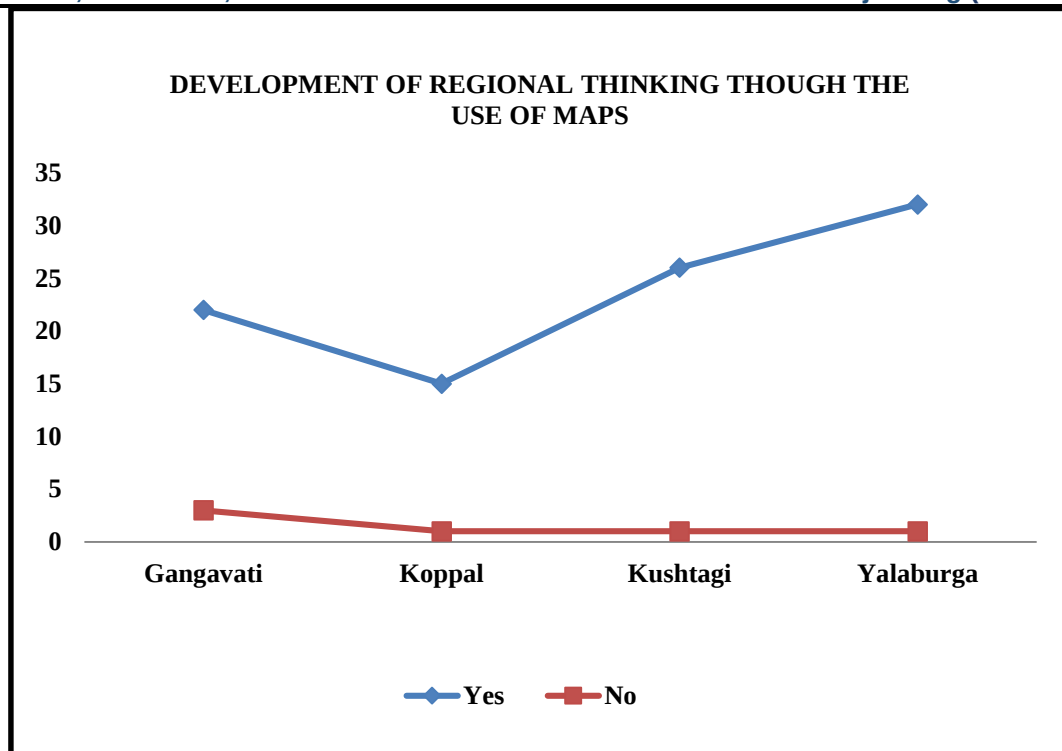


Fig. 9

2.8 Use of Maps to Facilitate Conceptual Connections and Enhance Learning Relevance

Maps have long been recognized as an effective pedagogical tool for linking multiple concepts across diverse subjects and enhancing the relevance of learning. By enabling students to visualize and relate social, geographical, and political environments, as well as personal contexts, maps support the development of a holistic understanding and foster meaningful conceptual connections.

A survey was conducted in Koppal District, targeting 101 school teachers, to assess the perceived utility of maps in connecting concepts and providing relevance to learning. The results indicated that 95 teachers (94.1%) reported using maps as an effective tool for learning, while 6 teachers (5.9%) opined that maps were not suitable for establishing conceptual connections.

A taluk-wise breakdown of responses revealed that 32 teachers from Yelburga (33.7%), 26 from Kushtagi (27.3%), 22 from Gangavathi (23.2%), and 15 from Koppal taluk (15.8%) considered maps appropriate for enhancing learning relevance. Conversely, 1 teacher each from Yelburga, Kushtagi, and Koppal taluk, and 3 teachers from Gangavathi indicated that maps were not effective for connecting concepts.

These findings underscore the widespread recognition of maps as a valuable instructional aid, while also highlighting minor variations in perception across different taluks. The study reinforces the importance of integrating maps into the curriculum to support conceptual understanding and contextual learning.

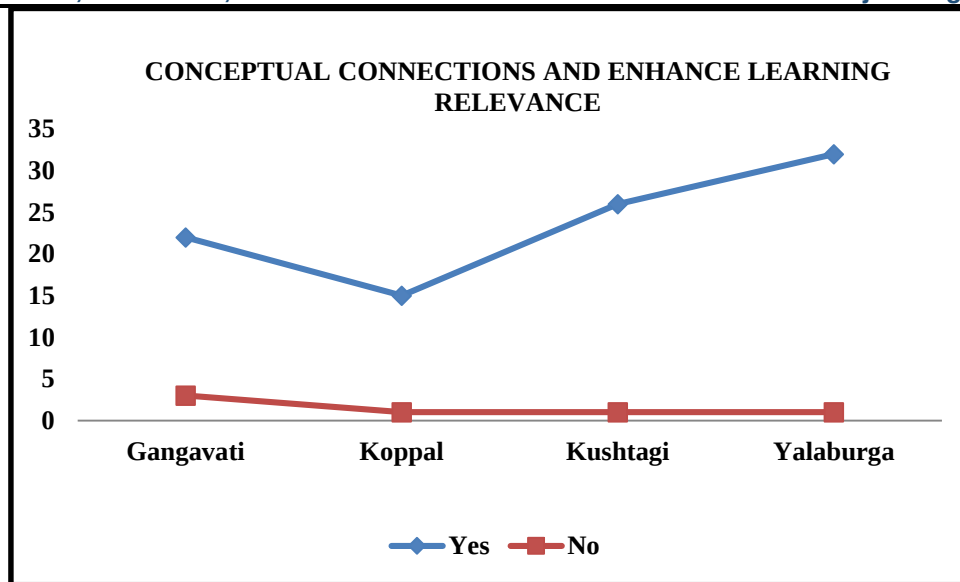


Fig. 10

Table 4

Sl.No	Taluk	Total Respondents	Development of Regional Thinking		Enhance Learning Relevance	
			Yes	No	Yes	No
1	Gangavati	25	25	0	22	3
2	Koppal	16	15	1	15	1
3	Kushtagi	27	27	0	26	1
4	Yalaburga	33	32	1	32	1
Total		101	99	2	95	6

Sources: Primary Data

3 Use of Charts as Teaching Aids in Government High Schools

Charts serve as effective tools for integrating visual aids into the teaching–learning process. This study explores how thoughtfully designed and implemented charts can enhance learning by providing clarity and improving instructional effectiveness in diverse classroom settings. Charts act as visual representations that simplify the understanding of complex relationships between geographical elements. For instance, to teach the solar system, geography teachers employ charts illustrating the Sun and other planets, allowing students to grasp intricate concepts more easily. In this study, data were collected from 101 teachers across various taluks in Koppal district, and all respondents (100%) reported that charts facilitate a better understanding of complex interrelationships among geographical elements.

3.1 Charts as Effective Tools for Geographical Comparison and Analysis

Charts are widely recognized as effective instructional tools that facilitate students' ability to compare and analyze various regions and phenomena. They help in illustrating the relationships among geographical features across different spatial scales, including continents, countries, states, and districts. A survey conducted among 101 teachers in the district revealed that 99% considered charts to be highly effective for comparison and analysis, while only 1% reported that charts were not helpful in this regard. These findings underscore the significant role of charts in enhancing analytical and comparative skills in Geography learning. Consequently, integrating charts into classroom instruction can substantially improve students' understanding of spatial relationships and foster critical thinking skills in geographical learning.

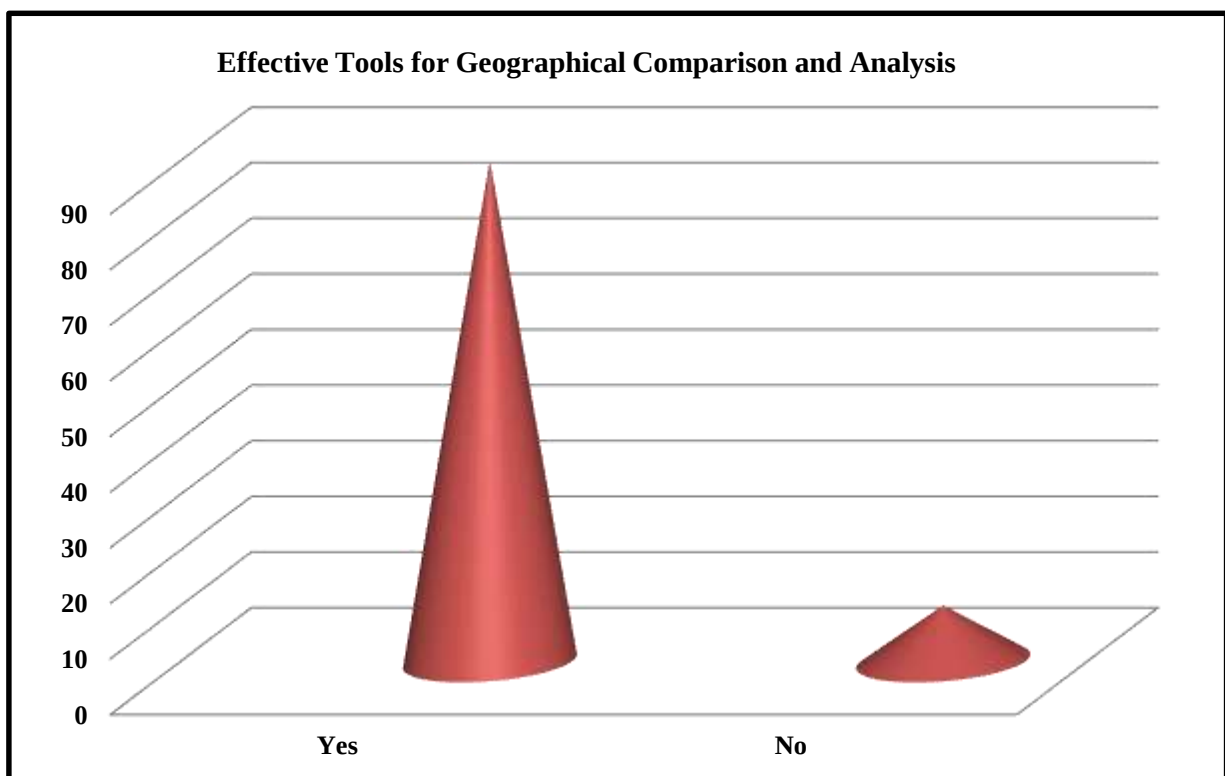


Fig. 11

3.2 Effective Representation of Geographic Data Trends Using Charts

Charts are an effective tool for illustrating complex geographic data trends, including population distribution, economic activities, industrial zones, rivers, glaciers, wind patterns, and volcanic activity. As shown in Table 5, a survey of 101 respondents in the district indicated that 96% of teachers considered charts highly effective for explaining these trends, while 4% found them less suitable. These results underscore the value of chart-based visualization in facilitating clear interpretation and communication of spatial information. Incorporating charts into Geography learning can enhance students' analytical abilities, promote spatial awareness, and support evidence-based decision making in environmental management and urban planning.

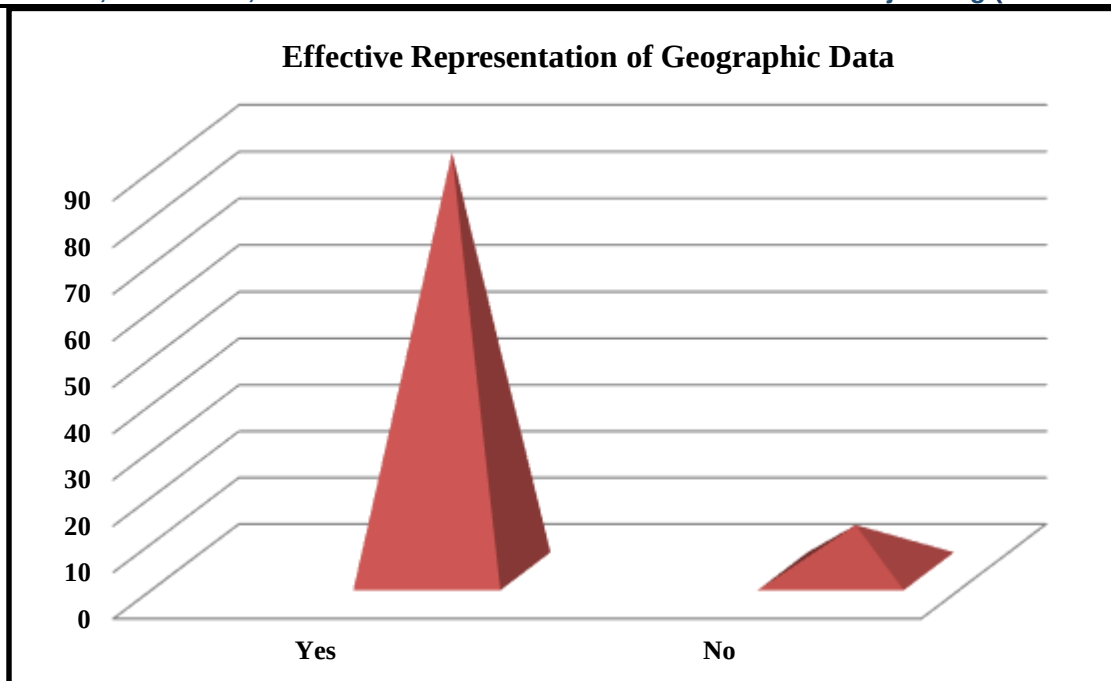


Fig. 12

Table 5

Sl.No	Taluk	Total Respondents	Effective Tools for Geographical Comparison and Analysis				Effective Representation of Geographic Data			
			Yes	%	No	%	Yes	%	No	%
1	Gangavati	25	24	96	1	4	24	96	1	4
2	Koppal	16	16	100	0	0	15	94	1	6
3	Kushtagi	27	27	100	0	0	27	100	0	0
4	Yalaburga	33	33	100	0	0	31	94	2	6
Total		101	100	99	1	1	97	96	4	4

Sources: Primary Data

4 Conclusion

The present study explored the use of innovative teaching aids in Government high school geography to enhance learning and global competencies. Effective teaching relies on continually updated professional knowledge, and technology provides critical support in this regard. Teaching aids significantly improve student engagement, comprehension, and curiosity, even when resources like internet access are limited.

Focusing on government high schools in Koppal district (classes 6–10), the study employed a qualitative methodology using both primary and secondary sources. Key innovative teaching aids identified include maps, globes, charts, pictures and YouTube videos. These tools enable experiential, activity-based, and context-rich learning, linking classroom concepts to real-world applications.

The study emphasizes the importance of teacher training, curriculum design that integrates audio-visual and digital resources, and governmental support for educational materials. Enriched learning environments foster exploration, collaboration, problem-solving, and lifelong learning, demonstrating that

innovative teaching aids are pivotal in cultivating curiosity, critical thinking, and global awareness in Geography learning.

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