Implementation of Grade Level Assessment Tool in Social Sciences (GLAT-SS) for Grade VI of Karnataka State Education Board

Palnaty Vijetha*, Alok Kumar Upadhyay** and Anil Abbur***

Abstract

This study attempted to implement Grade Level Assessment Tool Social Sciences (GLAT-SS) for Grade VI of the Karnataka State Education board. A total of 615 students participated in the study, 310 students were from the Kannada medium, and 305 students were from English medium schools. A convenient sampling technique was used to select the students across six districts in Karnataka state (including pilot study). Investigators employed a survey research design. The study was conducted in two major stages: Compilation of GLAT-SS test items and field testing of GLAT-SS. Kruskal-Wallis one way ANOVA test and Mann-Whitney-U test were used for the analysis of data. The results revealed a significant influence of different districts on students' performance on GLAT-SS. However, there was no significant influence of the medium of instruction on students' performance on GLAT-SS. A significant difference was also found in English medium and Kannada medium students' performance across different districts of Karnataka state. As part of the study, the range of scores for GLAT-SS was determined in three levels: below average, average, and above average. The study highlights that GLAT-SS can identify students' present performance levels for Grade VI in Social Sciences subject and accordingly help in planning the remedial teaching sessions.

Associate Professor (Special Edn.), All India Institute of Speech & Hearing (AIISH), Mysore.

***Associate Professor and Head,* Department of Special Education, AIISH, Mysore.

**** Research Officer* (Contract), AIISH, Mysore.

Introduction

Assessment is an essential part of the school education programme. The teaching-learning process is not completed without assessment. For any training programme, assessment is necessary to determine the progress achieved and what is yet to be achieved. Many countries have identified the importance of formative assessment in reaching the target in education. For example, in England, a formative assessment program was started in the year 2000 at preschool and primary school level. In Scotland, formative assessment practices were used by teachers in the teaching process. In 1999, New Zealand also implemented its national assessment strategy on formative assessment; in Canada, also formative assessment is viewed as a fundamental strategy (Ozan and Kincal, 2018). In other countries also such as Spain, Germany, Sweden, and Finland, highlighted the importance of formative assessment and the necessity of using different assessment methods (Klinger, Volante and DeLuca, 2012). Furthermore, it also helps the teachers plan and modify the teaching-learning process as a whole and even for few students specifically. The formative assessment results act as an indicator for teachers to plan their lessons as they inform teachers how much the students have learned their lessons (Wuest and Fisette, 2012). It aids in diagnosing the learning problems of students in the classroom. It helps teachers to involve the parents by reporting them about the child's learning.

Social Sciences are a unique subject that aims to promote equality, democracy, and liberty among students to become responsible citizens. It encompasses various concerns of society and includes a wide range of content drawn from history, geography, political science, economics, and sociology (Clark, 1973). A study was conducted to determine the impact of teaching a lesson in social sciences Grade IX using jigsaw technique Bartin province in Turkey. It included 46 students. A pre-test and post-test control group experimental design was used. It was found that instruction through the jigsaw technique had a positive impact on academic success. And a statistically significant difference was found in pre and post-test results (Harur, 2017). Another study was conducted to investigate the impact of teaching social sciences with ICT's help on people's achievement. The quasi-experimental research design was used. The study subjects were divided into two groups of Grade VI pupils of a public primary school in Izmir, Turkey. Each group consisted of 35 pupils. Three research tools were used to collect data, i.e., academic achievement test, attitude measurement scale on social sciences education, and an attitude measurement scale on ICT. The results revealed that teaching

social sciences using ICT does not significantly affect pupils' attitudes towards social sciences lessons (Cener, Acun and Demirhan, 2015). It is vital to assess their knowledge in social sciences to gauge the knowledge acquired. Moreover, unlike other subjects, social sciences are different in each state as students of one state study more of their local geographical features, local history, economics, and political science.

Educational Assessment at every grade level and in every subject helps identify the concepts at which the child finds it difficult to understand and perform. It further helps to work on the educational training needed for students. Grade level assessment will enable parents and educators to know the students' achievements levels and inform the next steps in the students' learning. Moholik (2017) conducted a study on quality dimension in evaluating social science. He mentioned in social sciences different types of questions must be used. Such as multiple choice items, matching items, very short items, easy type, etc. He also highlighted multiple-choice must be prepared, which suits all kinds of learners. Joshi (2017) conducted a comparative study of questions given in Grade VIII social science textbook of different publications from the point of view of a continuous and comprehensive evaluation in (CCE). The results revealed the history book 'Our Past – Part I' of Grade VIII published by private publication is better than NCERT publication from the point of view of CCE. A study by Kathleen (2016) examined the effects of Google classroom on teaching social science for Grade VII learners graders with learning disabilities. A single subject design was used to evaluate the learning outcomes. During the intervention period for nine weeks, students had to complete assigned work using Google classroom. The results revealed that students increase their vocabulary, but little improvement was seen in content knowledge. Hendrix (1999) conducted a study whether using jigsaw technique students' academic achievement can be improved in social sciences subjects and skill necessary for being a good citizen.

Hilda et. al. (2020) conducted a study to determine the effect of implementation of performance assessment of the results of social sciences with covariates social attitudes in Grade IV in district Jombang. Research design used was archetypal. The post-test only control group with covariates social sciences attitudes was used. The results showed that there is a difference between learning outcomes of students in social sciences subject with respect to conventional performance appraisal and assessment.

Ozan and Kincal (2018) examined the effects of formative assessment practices on students' academic achievements, attitudes towards lessons and self-regulation skills in Grade V social sciences class.

The data collection instruments included: Social sciences performance tests, attitude inventories for social sciences classes, self-regulatory learning skills scales, a semi-structured interview form, and an observation form. The experimental procedure was carried out for 28 weeks. Forty-five students participated in the study. The results revealed that the experimental group in which formative assessment practices were performed had significantly higher academic achievement levels and a better attitude towards the class than the control group students. Different studies highlight the experiments carried out in social sciences subjects using a variety of techniques. However, the tasks related to assessing the present performance grade-wise, according to the state curriculum in social sciences subjects are hardly available leading to the current study's need.

Need for the Study

Considering the less availability of assessment tools in social sciences subject in Karnataka for Grade VI, the assessment tool must be developed to evaluate the knowledge gained in social sciences according to the curriculum prescribed. The following are the rational reasons why the Grade Level Assessment Tool in Social Sciences subject is to be developed.

1. It was observed that there are hardly any tests in India targeting students' assessment at the Grade VI level in social science subject as per latest Karnataka State Education Board.
2. The tests developed in other countries are not suitable for Indian conditions in general and Karnataka specifically as they are culturally inappropriate, especially in terms of social sciences.
3. It is mentioned that the government's policy 'No Detention' is promoting students from one grade to next grade without checking whether the child acquires the necessary knowledge, i.e., in simple words, there is no checkpoint at every stage.
4. It helps in establishing uniformity in assessment in social sciences subjects in Karnataka.
5. To assess the child in a more comprehensive and multi-dimensional manner, and get the best out of the child, evaluation of the child's learning should include different assessment types.

Consequently, such a test would help examine the grade-level performance in students in social sciences. Thereby, it would be possible to ascertain the child's present level of performance in social sciences subject based on the range of scores in Karnataka. If required, it would be possible to train the child appropriately. Thus, the current study is aimed to develop a test to assess grade-level performance

in students in the social sciences subject for Grade VI.

Aim of the Study

To implement a Grade Level Assess/ment Tool in Social Science (GLAT-SS) for Grade VI of Karnataka State Education Board in English and Kannada languages.

Objectives of the Study

1. To assess the influence of districts on GLAT-SS total scores.
2. To assess the influence of medium of instruction on GLAT-SS total scores.
3. To determine the range of scores for GLAT-SS in three levels, such as below average, average, and above average.
4. To examine the performance of English medium students across five districts of Karnataka.
5. To examine the performance of Kannada medium students across five districts of Karnataka.

Hypotheses of the Study

1. There is no significant influence of districts on GLAT-SS total scores.
2. There is no significant influence of the medium of instruction on GLAT-SS total scores.
3. There is no significant difference in the performance of English medium students across five districts of Karnataka.
4. There is no significant difference among Kannada medium students across five districts of Karnataka.

Operational Definitions

1. **Grade:** Grade VI students of English and Kannada medium in Karnataka state.
2. **Assessment tool:** It is a test developed based on the textbook of social sciences subject in Karnataka, both in English and Kannada.

Method

Research Design

Survey Research Design was used.

Participants

A total of 615 typically developing students participated in the study. For the pilot study, 204 typically developing students participated. Among them, 84 students (38 English and 46 Kannada) were from Grade VII, and 40 students were from each Grade VIII, IX, and X respectively, i.e., a total of 120 students (60 English and 60 Kannada) participated as can be seen in Fig.1.

And 411 typically developing students studying in Grade VII from five districts of Karnataka participated in the final data collection. Among them, 95 students (42 English and 53 Kannada) were from the Chamarajanagar district. Ninety eight students (47 English and 51 Kannada) were from Bellary district. Ninety eight students (50 English and 48 Kannada) were from the Chithradurga district. Seventy two students (43 English and 29 Kannada) were from Davanagere

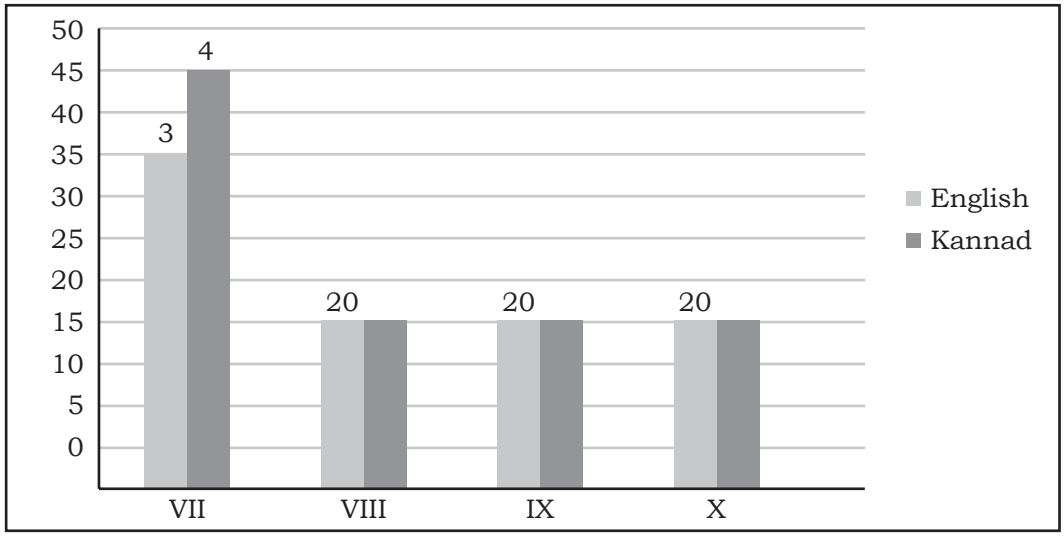

Fig. 1: Participants for pilot study from Mysore district

district, and 48 students (25 English and 23 Kannada) were from Dharwad district participated, as can be seen in Fig. 2.

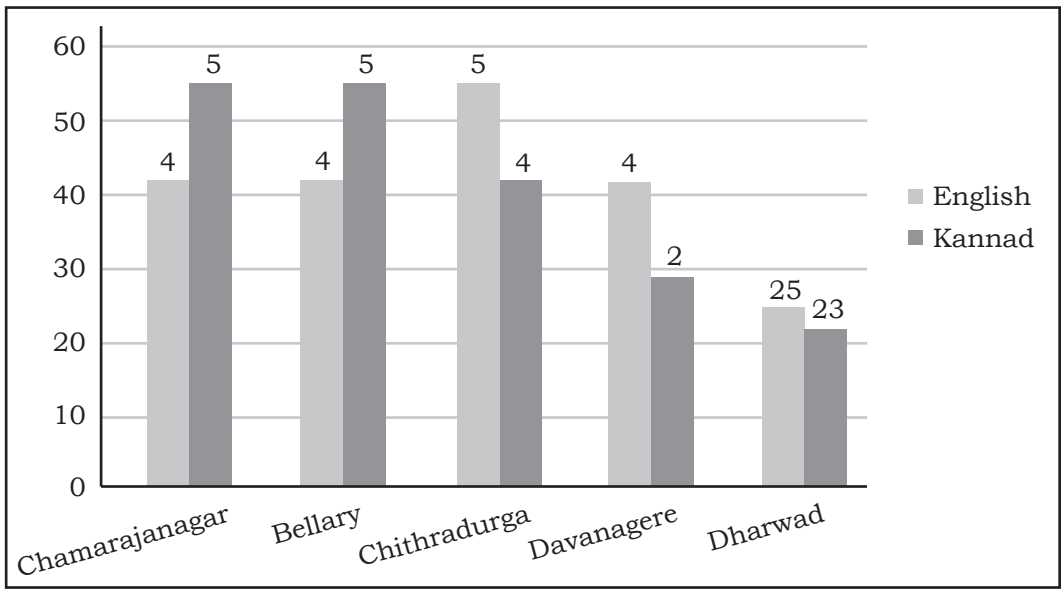

Fig. 2: Participants for final data collection across five districts of Karnataka

All the participants met the following inclusion criteria—

1. Students were studying in Karnataka State Education Board.
2. They were typically developing students studying in regular schools.
3. Studying in English and Kannada medium.
4. Studying in Grades VIII, IX, and X.
5. Studying in Grade VII.
6. Students in Grade VII must have scored 50 per cent in Grade VI Annual Exam in Social Science subject (Previous academic year) as per the Academic records.

Furthermore, they also met the exclusion criteria, i.e., no reported impairments and disabilities. It is as per the information collected from school authorities.

Sampling Technique

In this study, a convenient sampling technique was used.

Testing Environment

For data collection purposes, GLAT-SS was administered on students in Grade VII in a quiet classroom in their respective schools, away from distractions across five districts of Karnataka State.

Students from different grades were selected to ascertain whether they remember the concepts that they have learnt in previous grades in social sciences subject. The concepts learnt will be the foundation for future learning in higher grades and promotes vertical learning.

Procedure of the Study

The study was conducted in two stages. The first stage included the compilation of grade level assessment tool in social science (GLAT-SS) for Grade VI. The second stage included field testing of GLAT-SS on typically developing students in English and Kannada medium schools across five Karnataka districts and a final compilation of GLAT-SS, as can be seen in Fig. 3. As a part of ethical procedure, permission was sought from Principals of schools to carry out the study. After getting consent from the respective Principals, the data was collected for the study. Furthermore, the study also included developing a range of scores for GLAT-SS.

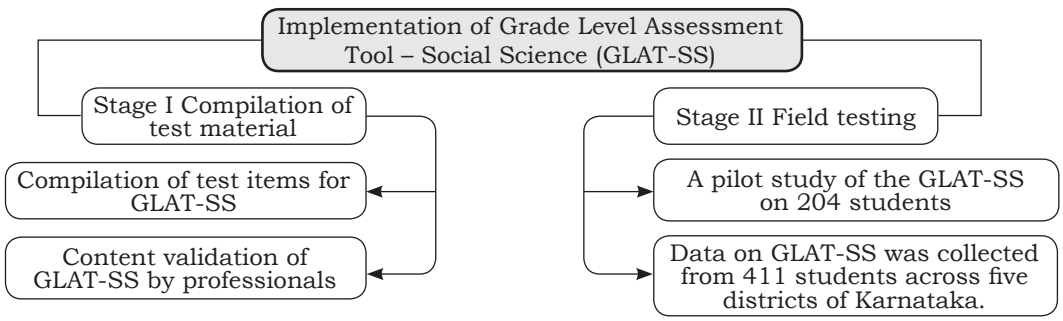

Fig. 3: Framework of steps in implementation on grade level assessment tool-social sciences

Results and Discussion

Data collected was statistically analysed for assessing the influence of district and medium of instruction on total scores. The results are discussed to draw general conclusions about the sample under study. To check whether the data is normally distributed for districts and medium of instruction, the data was subjected to the Shapiro Wilks test. And the results revealed that the data does not follow the normal distribution (i.e., $p<0.05$) for GLAT-SS total scores concerning district and medium of instruction. And for testing the hypotheses, non-parametric tests: Kruskal-Wallis one way ANOVA test and Mann-Whitney-U test were used to determine whether district and medium of instruction had any significant influence on GLAT-SS total scores. All statistical significance values were compared with 0.05 and 0.01 level of significance. The analysis is done by using SPSS software.

Influence of Districts on GLAT-SS Total Scores

The first objective of the study is to assess the influence of different districts on GLAT – SS total scores and the first hypothesis of the study states that there is no significant influence of districts on GLAT-SS total scores is tested and results are presented in following Table.

Table 1
Kruskal Wallis One Way ANOVA Tests Between 5 Districts in Respect of GLAT-SS Total Scores.

District	Mean	SD	Median	n	Mean Rank	x^2 (4)	p-value
Bellary	63.14	6.73	63.50	98	183.79	16.861	0.002**
Chamarajanagar	65.38	6.58	65.00	95	220.13		
Chithradurga	66.27	5.32	67.50	98	240.46		
Davanagere	63.52	6.33	62.75	72	185.56		
Dharwad	63.56	5.73	64.00	48	183.70		
Total	64.52	6.30	65.00	411			

** Indicates significant at P< 0.05 ** Indicates significant at P<0.01*

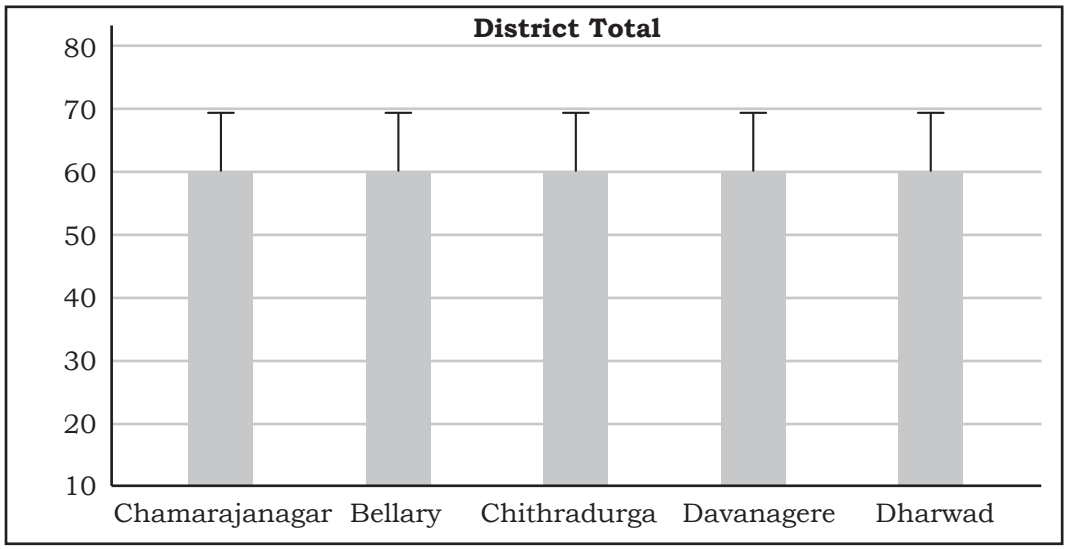

Fig. 4: Influence of Kruskal Wallis one way ANOVA tests between 5 districts in respect of GLAT-SS total scores

As can be seen in the Table 1 and Fig. 4, descriptive and inferential statistics revealed that students from Chithradurga district performed better (Mean=66.27) as compared to students in other districts. Results revealed that there is significant influence of districts on GLAT-SS total scores among students studying in grade VII (i.e., $\times^2$ (4) = 16.861, p = 0.002) and the null hypothesis is rejected.

Influence of Medium of Instruction on GLAT-SS Total Scores

The second objective of the study is to assess the influence of medium of instruction on GLAT-SS total scores and the second hypothesis states that there is no significant influence of medium of instruction on GLAT-SS total scores is tested and results are presented in the following table.

Table 2
Mann-Whitney U Test Between English Medium and Kannada Medium Students on GLAT-SS Total Scores

Medium	Mean	SD	Median	n	Mean Rank	|Z|	p-value
English	64.31	6.01	65.00	207	202.56	0.592	0.554
Kannada	64.73	6.59	65.00	204	209.50		
Total	64.52	6.30	65.00	411			

** Indicates significant at P< 0.05 ** Indicates significant at P<0.01*

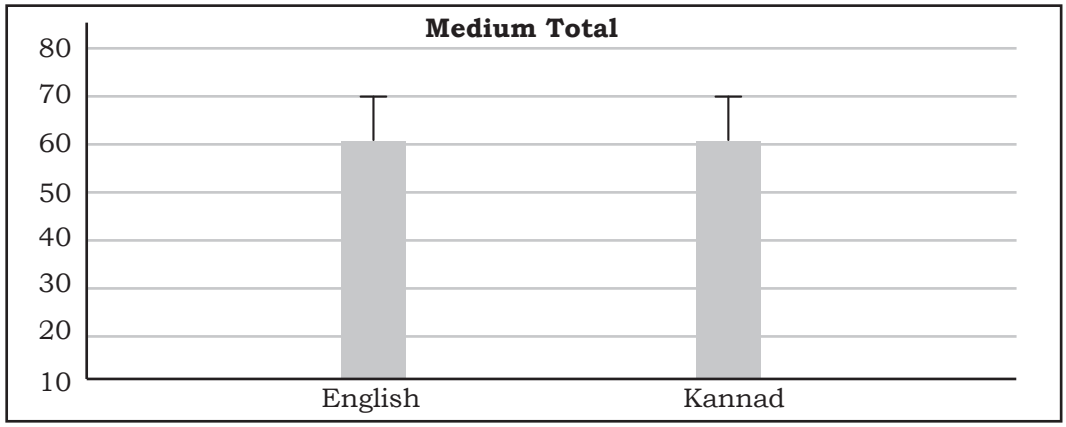

Fig. 5

Kannada medium students on GLAT-SS total scores.

Descriptive and inferential statistics calculated in the above Table 2 and Fig. 5 showed that there is no significant influence of medium of instruction on GLAT-SS total scores (i.e., $|Z|=0.592$, $p=0.554$) and hence the null hypothesis is accepted.

Calculation of Range of Scores for GLAT-SS

The third objective of the study is to find out the range of scores for GLAT-SS in three levels such as below average, average, and above average.

As seen in Table 3, based on Mean and Standard deviation of GLAT-SS total scores, the range of scores were divided into three categories namely below average, average, and above average.

The Performance of English Medium Students across Five Districts of Karnataka

The fourth objective of the study is to assess the performance of English medium students across five districts of Karnataka and the fifth hypothesis states that there is no significant difference in performance of English medium students across five districts of Karnataka.

Table 3
Descriptive Statistics Mean, Standard Deviation and Median for GLAT-SS Total Scores

Range		
Below average (58.22)	Average (64.52±6.30)	Above average (70)
0–57	58–69	70–80

** Indicates significant at P< 0.05 ** Indicates significant at P<0.01*

Table 4
Kruskal Wallis one Way ANOVA Tests (Non-Parametric Test) Across Five Districts of Karnataka Among English Medium Students in Respect of GLAT-SS Total Scores

District	Mean	SD	Median	N	Mean Rank	x^2 (4)	p-value
Bellary	59.28	5.68	60.00	47	56.20	62.080	0.000**
Chamarajanagar	65.79	4.34	65.50	42	117.12		
Chithradurga	67.55	5.59	69.00	50	141.03		
Davanagere	66.13	5.40	65.00	43	119.94		
Dharwad	61.70	3.62	62.00	25	70.34		
Total	**64.31**	**6.01**	**65.00**	**207**	**202.56**		

**Indicates significant at P< 0.05 ** Indicates significant at P<0.01*

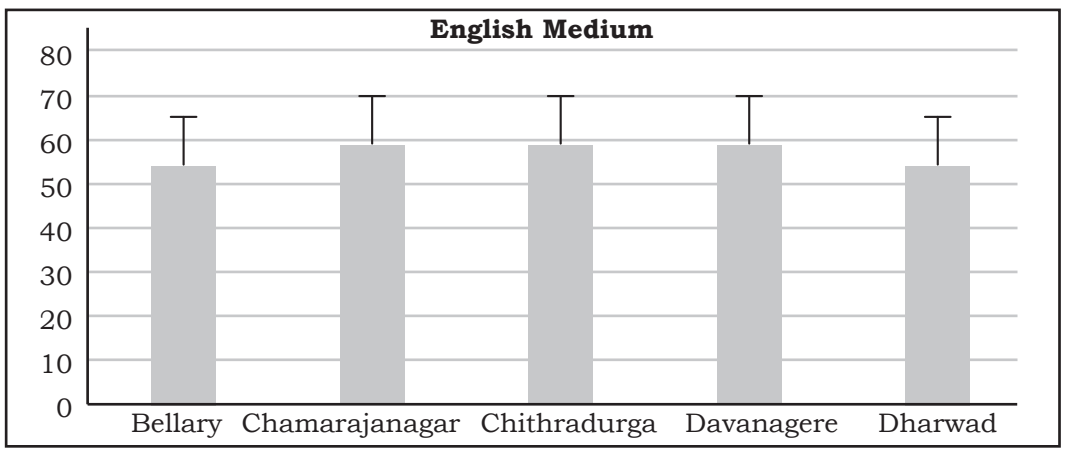

Fig. 6: Performance on GLAT-SS across five districts of Karnataka state among english medium students

As can be seen in the Table 4 and Fig. 6, descriptive and inferential statistics revealed that students from Chithradurga district English medium students performed better (Mean=67.55) as compared to students in other districts. Results gave there is significant influence of districts on GLAT-SS total scores among English medium students studying in VII grade (i.e., x^2 (4) = 62.080, p<0.01). Hence, null hypothesis is rejected.

The Performance of Kannada Medium Students across Five Districts of Karnataka

The fifth objective of the study is to assess the performance of Kannada medium students across five districts of Karnataka and the sixth hypothesis states that there is no significant difference among Kannada medium students across five districts of Karnataka.

Table 5
Kruskal Wallis one Way ANOVA Tests (Non-Parametric Test) Across Five Districts of Karnataka Among Kannada Medium Students in Respect of GLAT-SS Total Scores

District	Mean	SD	Median	N	Mean Rank	x^2 (4)	p-value
Bellary	66.70	5.60	68.00	51	121.31	22.570	0.000**
Chamarajanagar	65.06	7.96	64.50	53	105.26		
Chithradurga	64.93	4.72	65.25	48	102.29		
Davanagere	59.66	5.64	59.00	29	57.66		
Dharwad	65.59	6.89	66.50	23	111.39		
Total	**64.73**	**6.59**	**65.00**	**204**	**209.50**		

** Indicates significant at P< 0.05 ** Indicates significant at P<0.01*

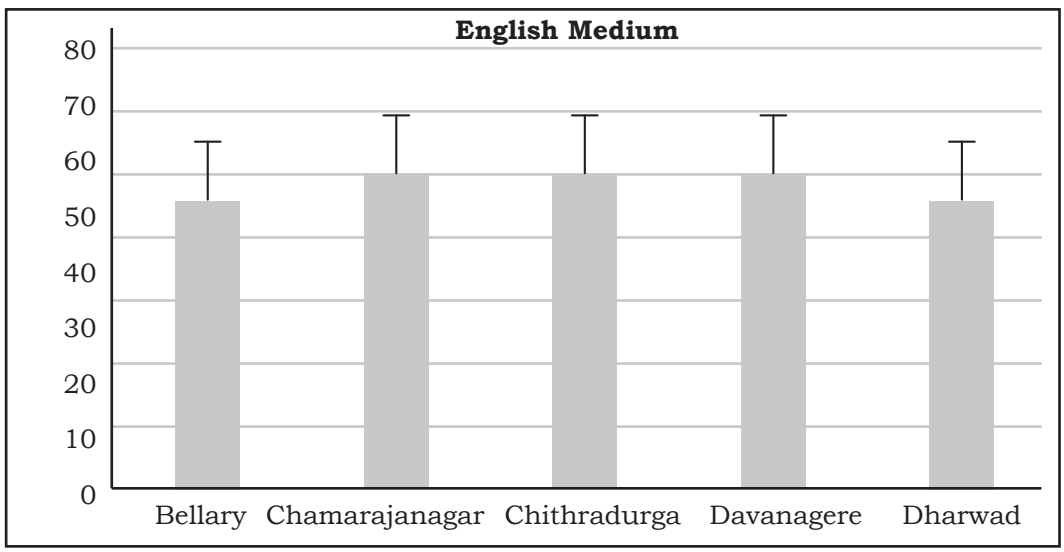

Fig. 7: Performances on GLAT-SS across five districts of Karnataka among Kannada medium students.

As can be seen in the Table 5 and Fig. 7, descriptive and inferential statistics revealed that students from Bellary district Kannada medium students performed better (Mean=66.70) as compared to students in other districts. Results gave there is significant influence of districts on GLAT-SS total scores among Kannada medium students

studying in grade VII (i.e., x^2 (4) = 22.570, p < 0.01). Hence, null hypothesis rejected.

As shown from the above results, the data analysis reveals that students from Grade VII from the Chithradurga district performed better than students in other districts on GLAT-SS. The scores were divided into three categories: below average, average, and above average. And most of the student's performance was in the range of 58–69, i.e., *average* in all the districts. Also, it is seen that the performance of students in the Chithradurga district was more in the range of 70–80, i.e., above average as compared to other districts. Kannada medium students from Bellary district performed better as compared to students in other districts. There is difference found in performance between English and Kannada medium students on GLAT-SS total scores in Bellary district, Chithradurga district, and Dharwad district. From the results, it is evident that GLAT-SS reveal students' performance in social science subject systematically where most of the students' performance was in the average range. It supports the study (Wuest and Fisette, 2012), where formative assessment results acted as an indicator for teachers to plan their lessons. GLAT-SS also considers the results of (Mcmillan 2014) which highlighted that many questions to be asked for obtaining the information regarding whether the students had learned or not. Among 15 different sections of GLAT-SS, Section 15 that is 'Read the passage and answer the questions' is the easiest section for students to answer, and the most challenging section for students to answer (Mean=2.03) was Section IX that is 'Answer the following questions in one sentence.'

Conclusion

The Grade Level Assessment tool (GLAT-SS) was implemented to assess students' educational level in social sciences subjects as per the Karnataka State Education Board in Grade VI so that remedial measures can be taken up appropriately. It is especially useful for those students who are scholastically backward in social sciences subject. This tool considers the content of Grade VI in Karnataka, and items were selected from the existing textbook with utmost care to enable a representative sample of content for testing. Also, it is easy for teachers to use the tool. GLAT-SS saves the teachers' time in constructing teacher-made tests in social sciences subject in Karnataka. It can be used by the teachers in identifying challenges faced by students in social science subjects for Grade VI in Karnataka for both English and Kannada medium students.

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