

**NATIONAL ASSESSMENT OF
LEARNING OUTCOMES**

in

Dhivehi, English, and Mathematics

Grades 4 and 7

Maldives

(NALO 2021)

Quality Assurance Department
Ministry of Education, Maldives
November 2022

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EXECUTIVE SUMMARY

This is the fourth publication of the National Assessment of Learning Outcomes (NALO) in Dhivehi, English, and Mathematics for Grades 4 and 7 in Maldivian schools. NALO 2021 was conducted in a total of 191 schools nationwide (from 20 atolls and greater Male' region). Around 4200 students from Grade 4, and 4300 students from Grade 7 participated in the study while the actual number varied among the subjects and the survey. Moreover, a total of 1710 teachers responded to the teacher survey.

The 2021 NALO was composed of three basic components: (i) subject-wise test papers on each of the three subjects, (ii) a student questionnaire that contained items on students' demographics and student, school, and home factors that may be related to their performance, and (iii) a teacher survey that contained items on teachers' demographics and classroom practices that may be related to student learning outcomes in the above subjects. In addition to this, items from international assessment (Progress in International Reading Literacy Study – PIRLS and Trends in International Mathematics and Science Study -TIMSS) were included in grade 4 English and Mathematics respectively. Findings for international assessment are reported in a separate document.

The sample for the assessment was selected by Quality Assurance Department QAD. The tests were administered online. Students were required to attend the designated examination hall in the respective schools where they attempted the questions using the tablets provided to them by the school. Relevant staff of the participating schools were given orientation on the procedure.

Student responses were coded into right or wrong answers, assigning 1 and 0 for each correct and wrong answer respectively. These scores were subsequently used to compute totals, averages, and percentages. While data coding and cleaning was primarily conducted using Microsoft Excel, data analysis was conducted using IBM SPSS version 25.0. Once the results have been obtained, Microsoft Excel was used to visualise them in the form of tables and charts. In addition to descriptive analyses, this year's analyses of NALO involved testing statistical significance where applicable which would allow policy makers to prioritise areas for intervention.

As for the findings comparing student performance in NALO over the years from 2015 to the current NALO year (2021), overall, the results indicated that there is a downward trend in student performance in Dhivehi at grade 4 while there is a slight upwards trend at grade 7. On the other hand, there is an upward trend in student performance in English at both grade 4 and 7. In contrary, there is a downward trend in student performance in Mathematics at both grade 4 and 7. The trend in student performance over the years indicates the need for attention to Mathematics and Dhivehi.

Previous NALO findings indicated that Maldivian girls outperformed boys in all three subjects at both grades 4 and 7, except for grade 7 Mathematics. Likewise, findings of NALO 2021 indicated that girls did better than boys except for grade 4 Mathematics. As for the factors associated with student performance, the result indicated inconsistent findings between grade 4 and 7. While many of the factors were found to have a statistically significant positive impact on student performance at grade 4, almost none of the factors had a statistically significant impact on student performance at grade 7. Further, even in the case of grade 4, the factors together explained only negligible amount variance in student performance.

NALO 2021 provides the education sector with valuable information on the performance of students at school, atoll, and national level, as well as international level (in certain subjects). In addition to this, performance in specific-wise subject components is also reported. These findings have important implications for various stakeholders in the education sector including Ministry of Education, schools, teachers, and parents.

Part I

CHAPTER 1

INTRODUCTION AND BACKGROUND

Overview of the report

According to the NALO report of 2017 (Quality Assurance Department - QAD, 2018), in the first NALO that was conducted in 2008, the average student performance for grades 4 and 7 in both English and Mathematics was lower than 40% marks. After a seven-year gap, NALO was conducted in 2015 for English and Mathematics, in 2016 for Dhivehi, and in 2017 for all three subjects. NALO 2021 was the successor of NALO 2017 in which student performance was assessed in the Dhivehi, English, and Mathematics for grades 4 and 7.

In this report, the findings and analysis of NALO 2021 in Dhivehi, English and Mathematics conducted by the Quality Assurance Department (QAD) will be presented. The report is organised into three parts. Part one is composed of two chapters and is an overview of the study that includes the introduction, background, and methodology of NALO 2021. Part two contains the results of student performance in the three subjects of NALO. These results are presented separately for each subject and each grade. In addition to the overall student performance in each subject, gender-wise and atoll-wise breakdown of results are also presented. Findings for the factors associated with student performance as well as results of the teacher survey are also presented in this part. The final chapter under part two contains conclusions and recommendations. Part three is comprised of references and appendices. Apart from the above, NALO 2021 findings for each participating school were also produced as standalone documents which present detailed school-wise results.

Background to Maldivian education system

According to the statistical yearbook of Maldives 2020, the population of the country as of 2019 is 372,739, which is scattered into 187 inhabited islands (Maldives Bureau of Statistics - MBS, 2020). Moreover, according to educational statistics of 2019, there are 88,912 students, which is about a quarter of the whole population (Ministry of Education - MoE, 2019). Additionally, referring to educational statistics of 2019, while there are 348 schools, including private and community schools, 41% of these have a student enrolment of 100 or less. On the other hand, with a total of 10,242 teachers, the student to teacher ratio is as low as nine. This ratio is obtained including untrained (temporary) teachers that contribute to more than 11% of the teacher population (MoE, 2019). The peculiar characteristics of Maldives with respect to its geography, composition of population, distribution of educational resources, and economy present dreadful challenges towards provision of education in the country.

Despite these challenges, the country has achieved significant milestones in terms of providing universal primary education for all way back in 2002 (UNDP, 2014). Additionally, the net enrolment rate (NER) of early childhood education has made a remarkable progress from 51.2% in 2001 to 99.6% in 2017 (MoE, 2016). Furthermore, while the NER of primary and lower secondary are 95.9% and 90.5% respectively in 2018, the NER reached 100% for both the levels in 2019 (MoE, 2019).

While existing evidence demonstrates praiseworthy achievements of the country in providing access to education, the challenges facing Maldivian education system at present has more to do

with quality rather than quantity as stated in the following text: “a fundamental challenge in Maldives has been managing quantitative expansion in this highly dispersed country while also focusing on improving the quality of education.” (Di Biase & Maniku, 2021, p. 554). Concerns have been documented with respect to low student achievement especially when compared with international averages reported by reputed agencies (UNICEF, 2014). There has been concerns with regard to low performance at O’ Level examinations. However, due to various efforts of the government and also owing to the change in policy (Educational Supervision and Quality Improvement Division - ESQID, 2010), five-subject pass rate increased to 77% in 2017 (Di Biase & Maniku, 2021).

Educational expenditure

The legal framework for education which includes various laws, conventions, and policies sets down a number of educational obligations on the government. Examples of these legislations include rectification of the Convention on the Rights of Children in 1991, enactment of the law on the same subject in 1991, rectification of the Convention on the Rights of Person with Disabilities in 2010, enactment of the Disability Act in 2010, enactment of the Preschool Act in 2012, and adoption of the Inclusive Education Policy in 2013 which was revised in 2020. Finally, the enactment of the Education Act in 2020 was added to the legal obligations of the government in educational provision.

All the above legal requirements along with the political atmosphere within the country makes Maldives a highly subsidised nation with regard to expenditure on education. Subsequently, free school education from K-12 is provided in all inhabited islands across the country for all students under the age of 18 years; school textbooks, stationery, and other learning materials are provided by the government; school end examination fees for both GCE O’ level A’ level students are paid by the government (QAD, 2018).

Figure 1 shows government spending on education (by seven countries in the SAARC region) as a percentage of GDP over a period of 10 years from 2011. As seen from the figure, there is an upward trend in government expenditure on education reaching 4.12% of GDP in 2019. This seems to be a considerable amount as compared to education expenditure of other countries in the region.

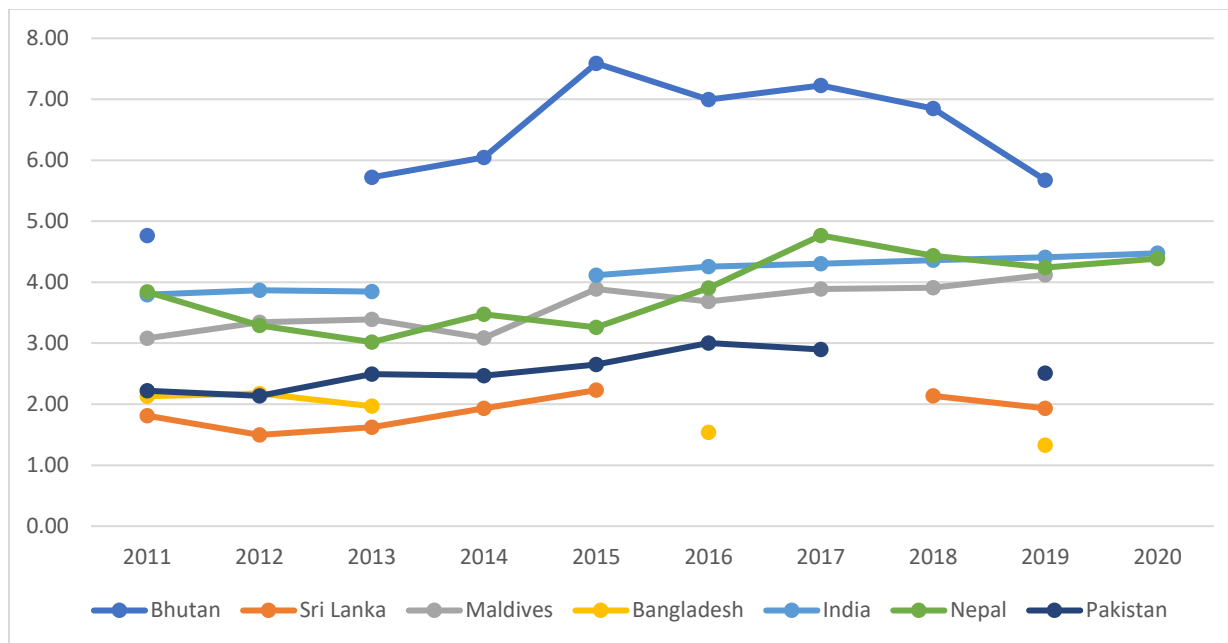


Figure 1 Government expenditure on education in SAARC countries

Source: <https://data.worldbank.org/>

Educational reform and new curriculum

With the introduction of child-friendly schools (CFS) in 2002, curriculum reform was initiated in the Maldives as a means to improve quality of education (Di Biase & Maniku, 2021). Essentially, CFS contributed to the reform process by ways of promoting a more child-centred approach to teaching as opposed to the traditional teacher-centred approach (Shareef, 2007). For several years, the CFS initiative was confined to lower primary grades until, in 2010, a more comprehensive policy document that encompasses several dimensions of schooling known as child-friendly *baraabaru* (literally meaning perfect) school (CFBS) indicators was introduced. The CFBS indicators soon became the framework for assessing quality of schools, which subsequently underwent several revisions, and was ultimately incorporated into the school improvement, quality assurance & accountability framework (SIQAAF) (MoE, 2017).

The above-mentioned programmes advocated reforms that do not truly involve changing the ‘content’ of the curriculum. In contrast, a major milestone in the reform process was the introduction of a whole new school curriculum framework in 2015. The new national curriculum frame (NCF) was developed around eight key competencies which are further broken into key learning areas and then to academic subjects (National Institute of Education - NIE, n.d.). Furthermore, stages of schooling are categorised into key stages from foundation stage (FS) to key stage 1(KS1) through KS5. The new NCF not only envisioned changes into its structure and content, but also to pedagogical and assessment strategies whereby a lot of emphasis is placed on assessment for learning (NIE, 2014). Furthermore, the revised assessment policy states that student performance in KS1 and KS2 shall be reported in narrative form as opposed to marks or grades (MoE, 2014). With these drastic changes to formal education system, it is essential to

place additional emphasis on assessing student learning particularly to evaluate the impact of the reforms.

The purpose of the study

One of the four main goals stated in the current educational sector plan of Maldives is ‘to improve learning for all through equitable access to quality education’ (MoE & Ministry of higher education - MoHE, 2019). Towards this end, the aim of NALO is to determine the cognitive learning outcomes in Dhivehi, English and Mathematics of students at the end of KS 1 and 2 (that is, grades 4 and 7) as stipulated in new NCF. In addition, NALO 2021 incorporated some questions from international assessments for the purpose of evaluating student performance against international benchmarks. The study also aims to disaggregate student performance into gender, atoll, school as well as cognitive skills so that the information could be utilised for the development of educational policies and programmes. Further, the findings of the current study will be compared with the previous NALO studies to see the trends in overall student performance. Finally, the study also intends to examine the factors that might be associated with student achievement.

CHAPTER 2

METHODOLOGY

Introduction

As has been indicated in chapter 1, the purpose of this study is to determine student performance in Dhivehi, English and Mathematics at the end of key stages (KS) 1 and 2 in the national curriculum framework (NCF), that is, in grades 4 and 7. According to the pedagogy and assessment guide that is accompanied with the new NCF (NIE, 2014) and the assessment policy of the ministry of education (MoE, 2014), students in KF 1 and 2 are to be given a narrative report as an indication of their learning outcomes. In contrast, NALO 2021 engaged quantitative methods to evaluate as well as to report student learning outcomes. This chapter provides an overview of the methodological consideration in NALO 2021.

Instrumentation

NALO 2021 contained 8 distinct instruments; these are one online examination in each of the three subjects of Dhivehi, English, and Mathematics for each of the grades 4 and 7, plus the student and teacher surveys on factors associated with student performance. The tests were composed of multiple-choice items whereby students were expected to identify the correct answer from the four choices given. These items belonged to broad discipline-wise skills (content areas) relevant to the curriculum content of each of the tested subjects. The distribution of questions into various content areas in each subject are given in appendices A through F as shown in Table 1. Item numbers 33 through 39 in grade 4 English are taken from Progress in International Reading Literacy Study (PIRLS) while item numbers 21 through 40 in grade 4 Mathematics are taken from Trends in International Mathematics and Science Study (TIMSS). These items are collectively referred to as international assessment in the current study. Findings for international assessment are reported in a separate document.

Table 1 Skills assessed in NALO 2021

Skill sets	Appendix
Dhivehi language competencies assessed – grade 4	Appendix A
Dhivehi language competencies assessed – grade 7	Appendix B
English language competencies assessed – grade 4	Appendix C
English language competencies assessed – grade 7	Appendix D
Mathematics competencies assessed – grade 4	Appendix E
Mathematics competencies assessed – grade 7	Appendix F

Further, the student and teacher survey are given in appendices G and H respectively. The student survey consists of items related to students' demographics and learning habits that may be related to their performance in the tested subjects. Likewise, the teachers' questionnaire was focused on identifying teachers' demographics and classroom practices that may be related to student learning in the selected subjects.

Item development

In order to develop the items of NALO subject tests, training on item development for selected teachers was conducted in each of the NALO subjects. Subsequently, item specifications were developed, and draft items were prepared in working sessions conducted with the trained participants. Pilot testing of the items were conducted as a field study. The new items being field tested were divided into four variants of the assessment. These variants were assigned to students in a spiral manner in order to spread out the versions across the pilot sample. Working items were then selected to compose the item bank for NALO.

As for the student and teacher surveys, the questionnaire that was used in ‘longitudinal study on the impact of curriculum reforms (2012-2013)’ was adapted. Meetings and discussions were conducted with relevant stakeholders during the refinement process. Once necessary modifications were made, these questionnaires were also pilot tested and final questionnaires were derived.

Sampling

NALO 2021 engaged a two-stage sampling. In the first stage, schools were selected from the 210 K-12 government schools. Some of these schools were selected for NALO at both grade 4 and grade 7 levels while others were selected to conducted NALO at only one of the two grade levels. Due to some adverse circumstances, it was not possible to conducted NALO in some subjects at the selected schools. Thus, the number of schools that participated in NALO 2021 differ among the subjects as well as between the two grades as indicated in Table 2. In general, while about 170 schools participated in NALO grade 4, about 190 schools took part in NALO grade 7.

Table 2 Number of schools that participated in NALO 2021

Grade /Subject	Dhivehi	English	Maths
Grade 4	174	171	172
Grade 7	191	190	189

In the second stage of sampling, students were selected at random from the chosen schools and grades for each of the NALO 2021 subjects if the population was more than 50: otherwise, the whole population was selected. Selection of students for the assessment was done by QAD. Like the case of schools, there were also some variations in the sample size of students who sat NALO 2021 within the two grades. Table 3 shows the number of students who did NALO 2021 in each subject at each grade level.

Table 3 Number of students who sat NALO 2021

Grade /Subject	Dhivehi	English	Maths
Grade 4	4,308	4,315	4,231
Grade 7	4,389	4,427	4,388

In addition to attempting the subject tests, students and teachers responded to the survey questionnaires. In the data cleaning stage, student ID card numbers were used to match survey data and student performance data in each of the three subjects for both the grades. Only those cases that could be matched were selected for further analyses. Subsequently, the usable sample sizes for students in grades 4 and 7 are 2,653 and 2,880 respectively while the sample size for teachers is 1,710.

Administering the tests

The tests were administered online. Students were required to attend the designated examination hall in the respective schools where they attempted the question using tablets provided to them by the school. Students were required to enter personal details upon which they were provided a passcode to proceed with the exam questions. Teachers were expected to ensure that students have submitted the test paper upon completion of answering all the items. Prior to conducting the assessments, students were given opportunity to attempt a sample assessment to allow them familiarise with the testing procedure. Relevant staff of the participating schools were given orientation on the procedures and specific guidelines were shared with respect to invigilation and administering the test.

Data entry, cleaning, and analysis

Once data collection was completed, data for NALO 2021 tests as well as surveys were downloaded into Microsoft Excel from the online platform. Data were then cleaned and coded so that the intended analyses could be performed. In this regard, all correct answers in the tests were coded 1, the wrong answers were coded 0, and the missing data were left blank. Additionally, appropriate coding was applied for other variables such as gender, school, atoll, and responses to the survey questionnaires. Once data cleaning and coding were done, data were then transferred to IBM SPSS version 25.0 which was employed in conducting the analyses as required. Descriptive statistic of frequency, percentage, mean and standard deviation were used while graphical representation of the same were employed where appropriate. As NALO 2021 was conducted for a selected sample – and not for the whole population of students – inferential statistics of *t*-test was used for investigating statistical significance of observable difference in descriptive analysis. Moreover, Pearson Correlation was used for investigating relationships among some selected variables and student performance. Further, multiple regression was engaged in determining the impact of select factors on student performance.

Part II

CHAPTER 3

PATTERNS OF ACHIEVEMENT OVER THE YEARS

Since NALO has been conducted for over some years, it would be meaningful to analyse the trend in student performance over the years. In this regard, students’ average performance in NALO 2015, 2016, 2017, and 2021 (the current year) are considered for comparison. Readers are advised that Dhivehi was not included in NALO 2015 while English and Mathematics were not included in 2016 NALO. In contrast, all three subjects were included in NALO 2017 and 2021. Data for the previous years were retrieved from the NALO report of 2017 (Quality Assurance Department, 2018).

1. Annual trend in performance – grade 4

Figure 2 shows students’ average performance in grade 4 Dhivehi for the years in which NALO was conducted.

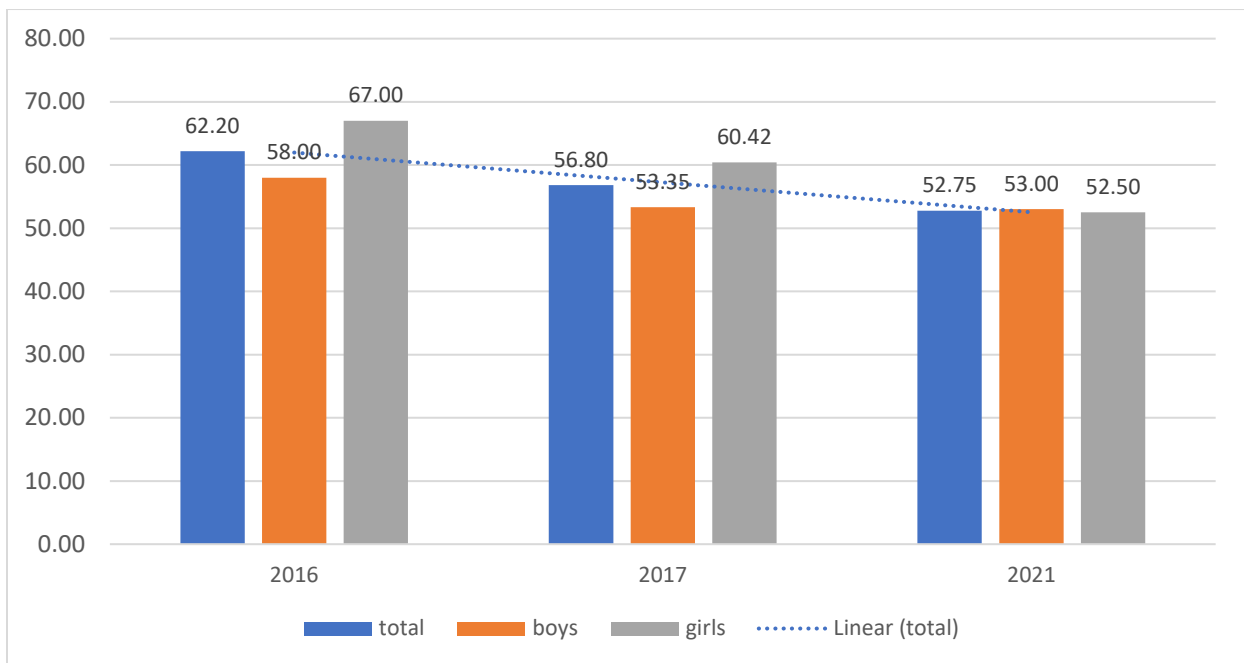


Figure 2 Students’ performance in NALO Dhivehi grade 4 over the years

According to the results in Figure 2, there is an overall downward trend in Dhivehi performance at grade 4. Furthermore, although girls scored better than boys in previous NALOs, girls’ performance is slightly lower in NALO 2021.

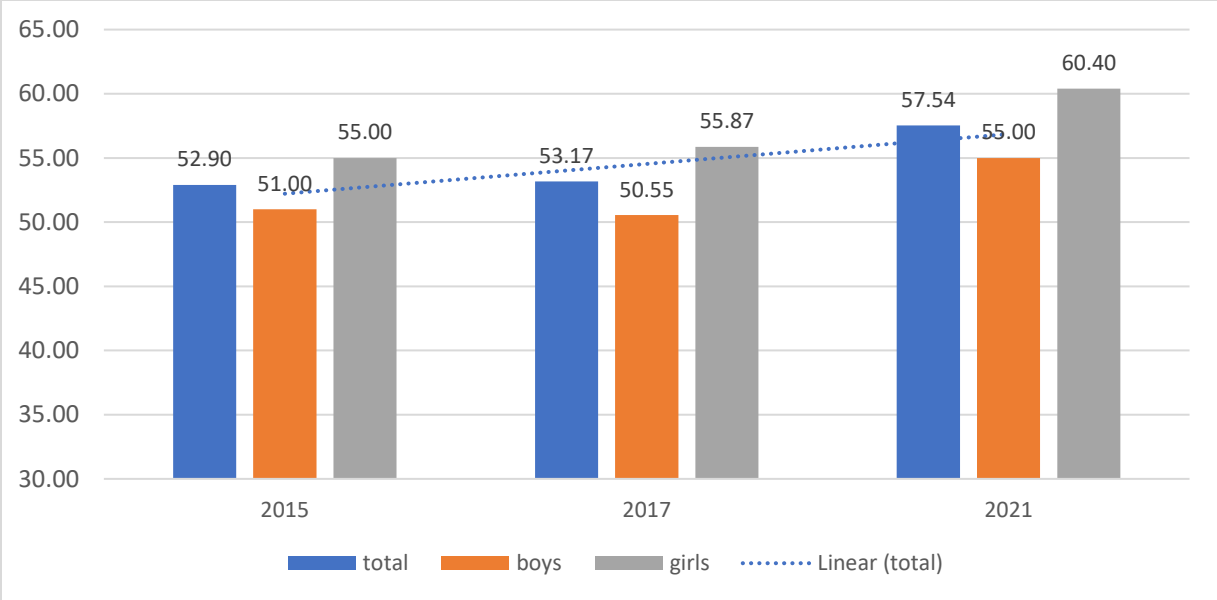


Figure 3 Students’ performance in NALO English grade 4 over the years

Figure 3 shows students’ average performance in grade 4 English for the years in which NALO was conducted. According to the results, there is an overall upward trend in English performance at grade 4. Furthermore, girls consistently scored higher than boys, and the difference between the genders is also observed to be more or less constant.

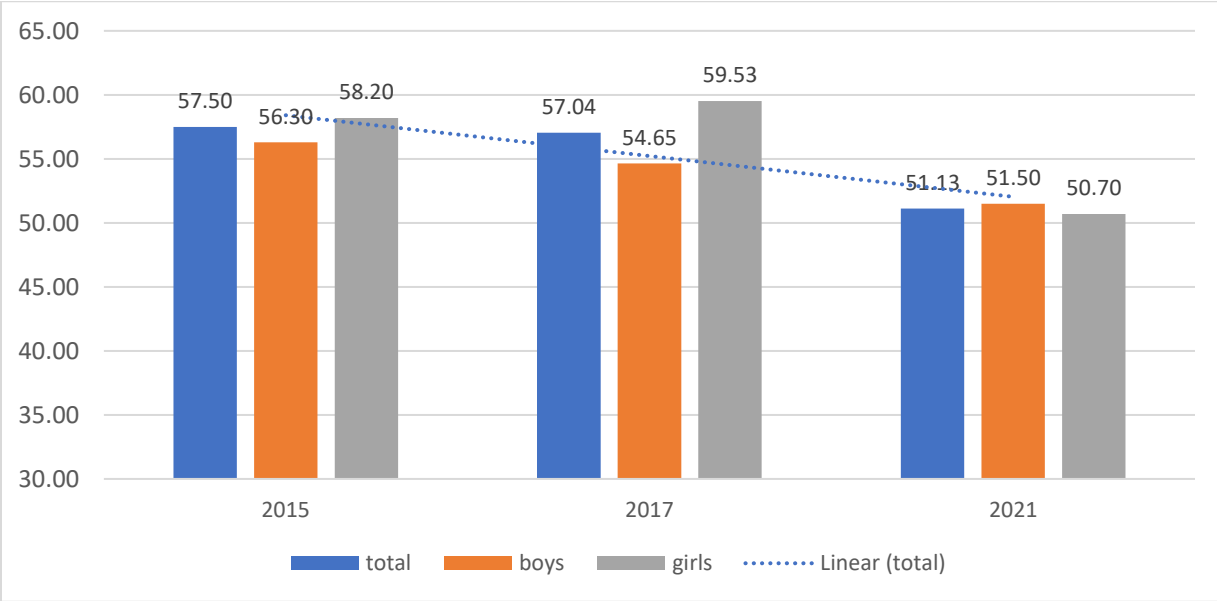


Figure 4 Students’ performance in NALO Mathematics grade 4 over the years

Figure 4 shows students’ average performance in grade 4 Mathematics for the years in which NALO was conducted. According to the results, there is an overall downward trend in

Mathematics performance at grade 4. According to the results, there is an overall downward trend in Mathematics performance at grade 4. Furthermore, although girls used to score better than boys in NALO 2015 and 2017, they scored lower in 2021.

2. Annual trend in performance – grade 7

Figure 5 shows students' average performance in grade 7 Dhivehi for the years in which NALO was conducted.

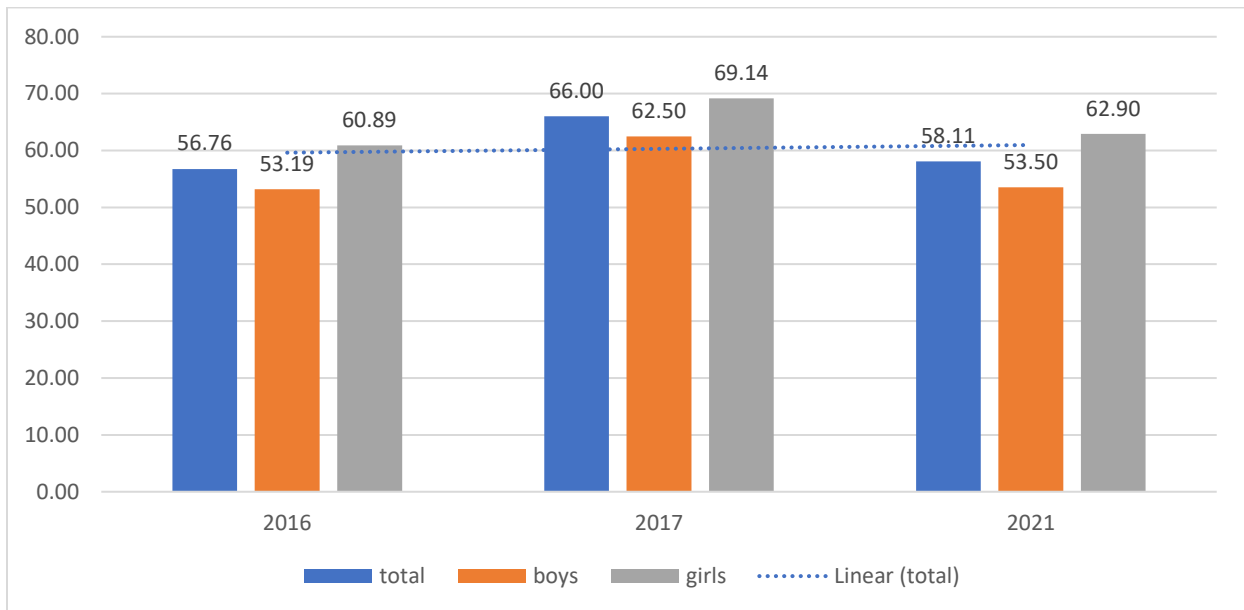


Figure 5 Students' performance in NALO Dhivehi grade 7 over the years

According to the results in Figure 5, there is an overall upward trend in Dhivehi performance at grade 7 despite slightly lower average in 2021 as compared to NALO result of the previous year. Furthermore, girls consistently scored better than boys in grade 7 Dhivehi, and the difference between the genders is observed to be getting wider.

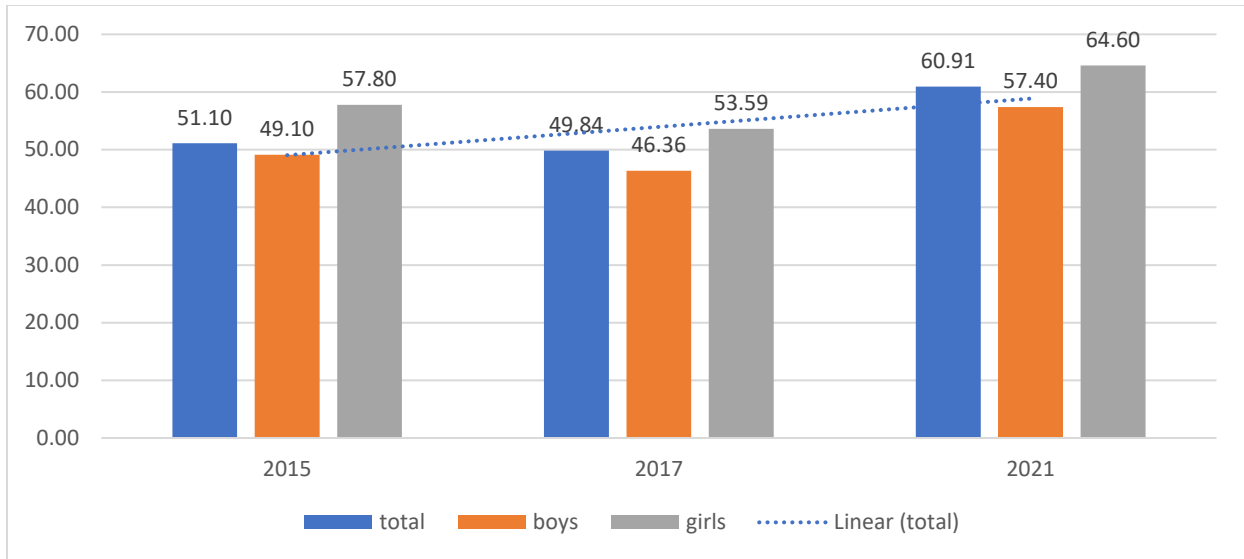


Figure 6 Students' performance in NALO English grade 7 over the years

Figure 6 shows students' average performance in grade 7 English for the years in which NALO was conducted. According to the results, there is an overall upward trend in English performance at grade 7. Furthermore, girls consistently scored better than boys in grade 7 English, and the difference between the genders is observed to be more or less constant.

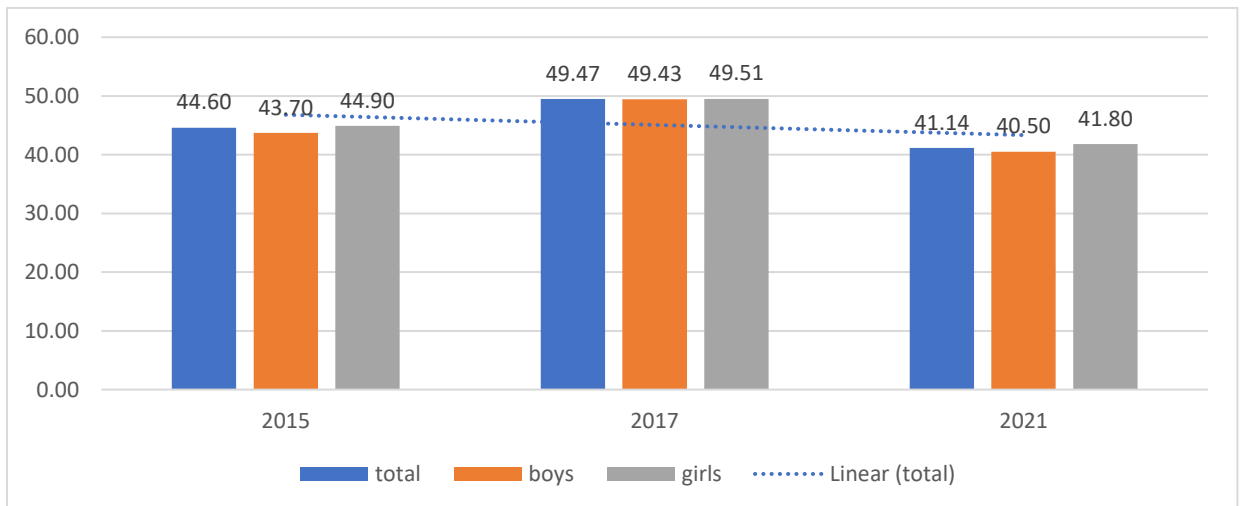


Figure 7 Students' performance in NALO Mathematics grade 7 over the years

Figure 7 shows students' average performance in grade 7 Mathematics for the years in which NALO was conducted. According to the results, there is an overall downward trend in Mathematics performance at grade 7. Furthermore, girls consistently scored little higher than boys in grade 7 Mathematics.

CHAPTER 4

NALO 2021 FINDINGS - GRADE FOUR

GRADE 4 DHIVEHI

1. Response Distribution

In grade 4, a total of 4,308 students from 174 schools across the nation sat the NALO 2021 Dhivehi assessment. Figure 8 shows the gender-wise breakdown of the candidates while Figure 9 shows the atoll-wise breakdown of the same.

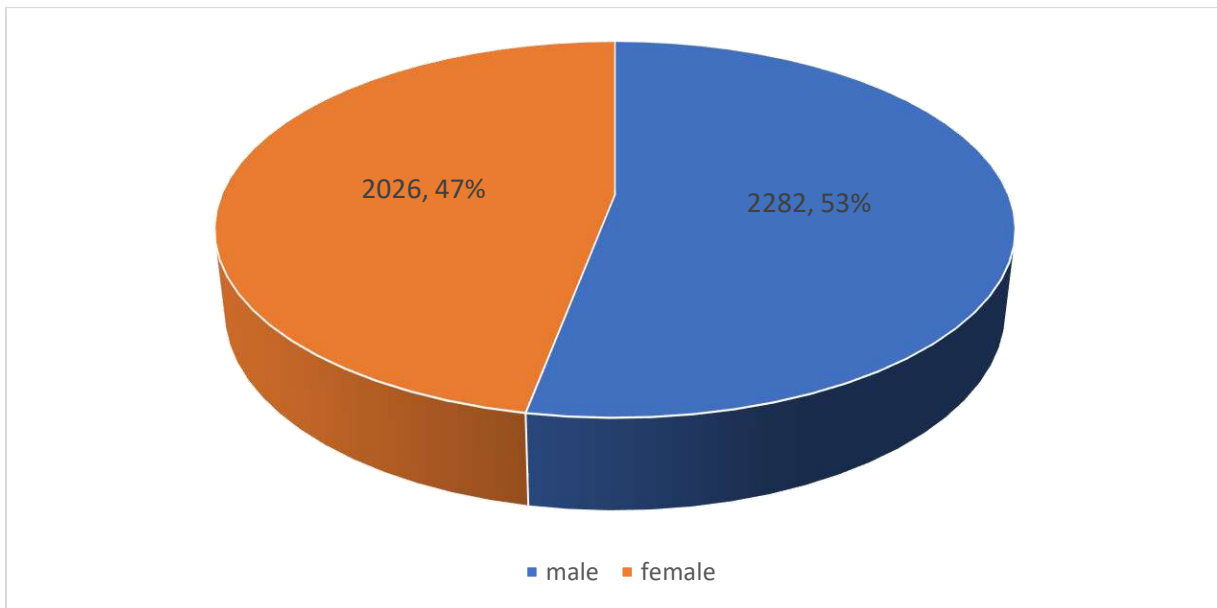


Figure 8 Gender-wise distribution of candidates (Dhivehi_Gr4)

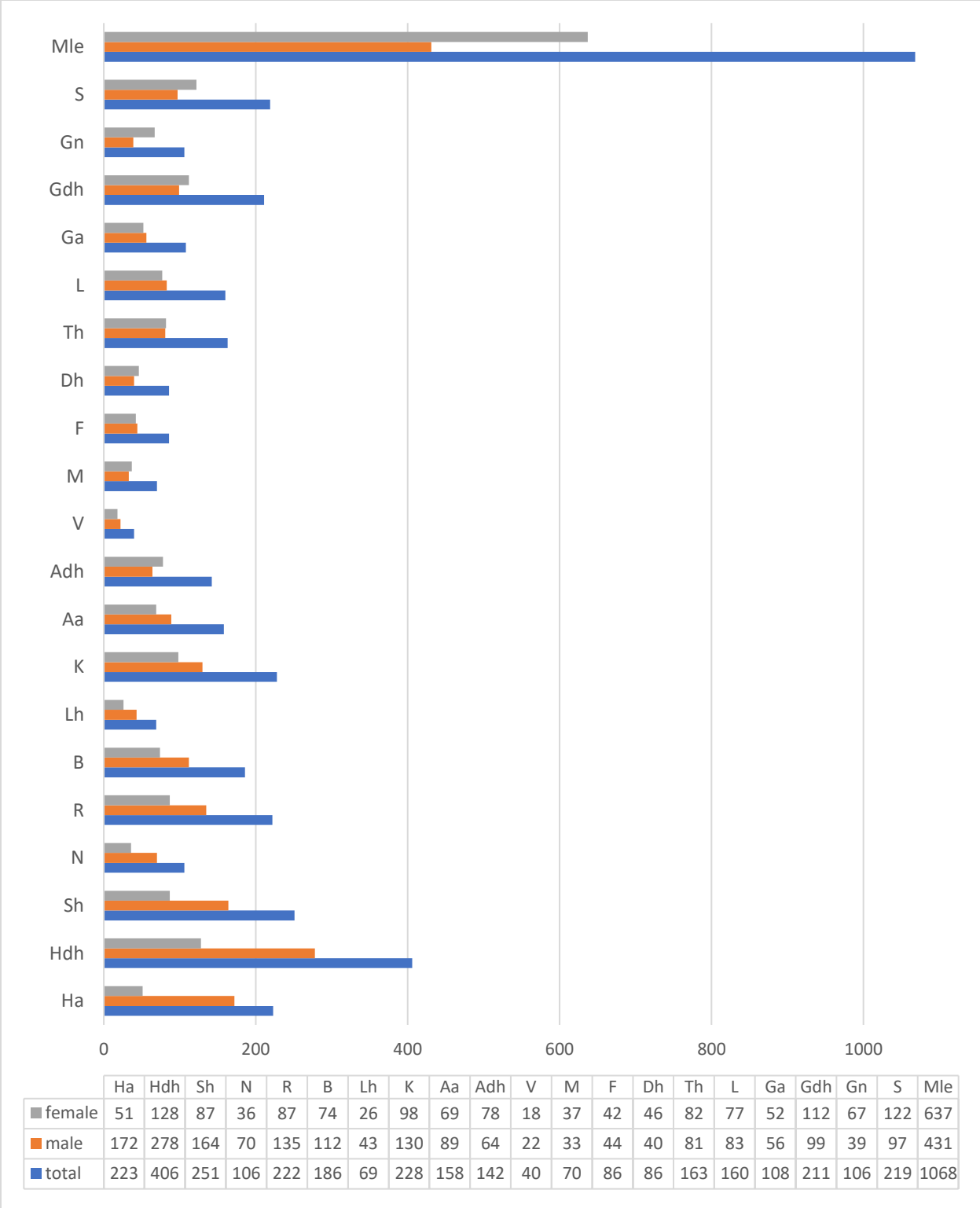


Figure 9 Atoll-wise distribution of candidates (Dhivehi_Gr4)

Further, Table 4 shows the response patterns for the 31 items in Dhivehi_Gr4 assessment of the NALO 2021. As seen from Table 4, a significant number of students (close to 20%) did not answer question numbers 5 and 6. Similarly, despite having a bit lower missing percentage, question numbers 9 and 10 also need attention in this regard. No item was answered by all the students. With a missing percentage of 2.14% (92 students), the least skipped item was question 2.

Table 4 Response patterns for Dhivehi_Gr4

Item	Correct (N , %)	Wrong (N , %)	Missing (N , %)
C5a_1	3175 , 73.70	1034 , 24.00	99 , 2.30
C5a_2	2617 , 60.75	1599 , 37.12	92 , 2.14
C5a_3	514 , 11.93	3693 , 85.72	101 , 2.34
C5a_4	2591 , 60.14	1617 , 37.53	100 , 2.32
C5a_5	2103 , 48.82	1376 , 31.94	829 , 19.24
C5a_6	1399 , 32.47	2081 , 48.31	828 , 19.22
C2_7	2877 , 66.78	1291 , 29.97	140 , 3.25
C2_8	3855 , 89.48	354 , 8.22	99 , 2.30
C3_9	2438 , 56.59	1539 , 35.72	331 , 7.68
C3_10	3051 , 70.82	924 , 21.45	333 , 7.73
C9_11	1076 , 24.98	3094 , 71.82	138 , 3.20
C9_12	813 , 18.87	3355 , 77.88	140 , 3.25
C9_13	1061 , 24.63	3133 , 72.73	114 , 2.65
C9_14	1743 , 40.46	2440 , 56.64	125 , 2.90
C9_15	1191 , 27.65	2994 , 69.50	123 , 2.86
C9_16	1751 , 40.65	2437 , 56.57	120 , 2.79
C10_17	1960 , 45.50	2220 , 51.53	128 , 2.97
C10_18	1366 , 31.71	2799 , 64.97	143 , 3.32
C7a_19	2578 , 59.84	1617 , 37.53	113 , 2.62
C7a_20	2945 , 68.36	1242 , 28.83	121 , 2.81
C7a_21	2665 , 61.86	1511 , 35.07	132 , 3.06
C7a_22	2253 , 52.30	1897 , 44.03	158 , 3.67
C8_23	1694 , 39.32	2463 , 57.17	151 , 3.51
C8_24	2258 , 52.41	1902 , 44.15	148 , 3.44
C8_25	1804 , 41.88	2348 , 54.50	156 , 3.62
C7a_26	2058 , 47.77	2065 , 47.93	185 , 4.29
C7b_27	2855 , 66.27	1353 , 31.41	100 , 2.32
C7b_28	3278 , 76.09	915 , 21.24	115 , 2.67
C7b_29	3130 , 72.66	1073 , 24.91	105 , 2.44
C7b_30	3629 , 84.24	561 , 13.02	118 , 2.74
C7b_31	3720 , 86.35	472 , 10.96	116 , 2.69

2. Patterns in student performance

In computing student performance, correct responses were assigned one mark while both wrong and non-responses were assigned zero marks because otherwise, the sample size would significantly decrease, thus affecting the overall findings adversely. Accordingly, Figure 10 shows the national performance of students in Dhivehi_Gr4 in the NALO 2021.

As inferred from Figure 10, the average performance of students in Dhivehi_Gr4 in the NALO 2021 is 52.75 as indicated by the mean score. Moreover, 19.2% of students achieved higher than the 75th percentile marks (67.74) while 47.0% of students achieved higher than the 50th percentile marks (54.84). These results indicate that a relatively greater proportion of students achieved higher than the pass mark of 40% in Dhivehi_Gr4.

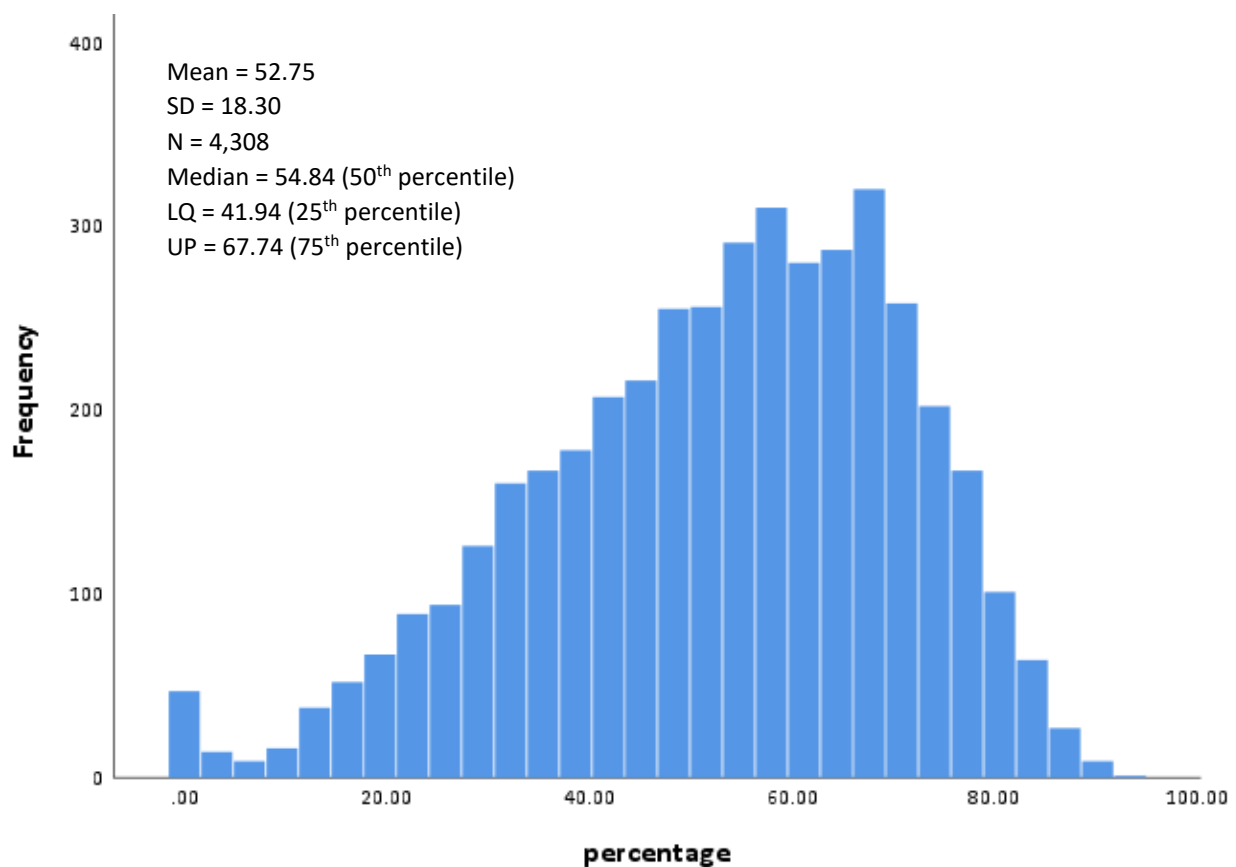


Figure 10 Distribution of student national performance in Dhivehi_Gr4

Figure 11 shows the atoll-wise average performance of students in Dhivehi_Gr4 in the NALO 2021. The national average (52.75) is shown by the line graph while the averages for the atolls and Male' are indicated by the bars. As seen from Figure 11, almost all atolls perform pretty close to the national average. Among those that scored above the national average, Baa atoll (M = 58.9) is the best scoring atoll. On the other hand, Gnaviyani atoll was far below the national average with a mean score of 43.7.

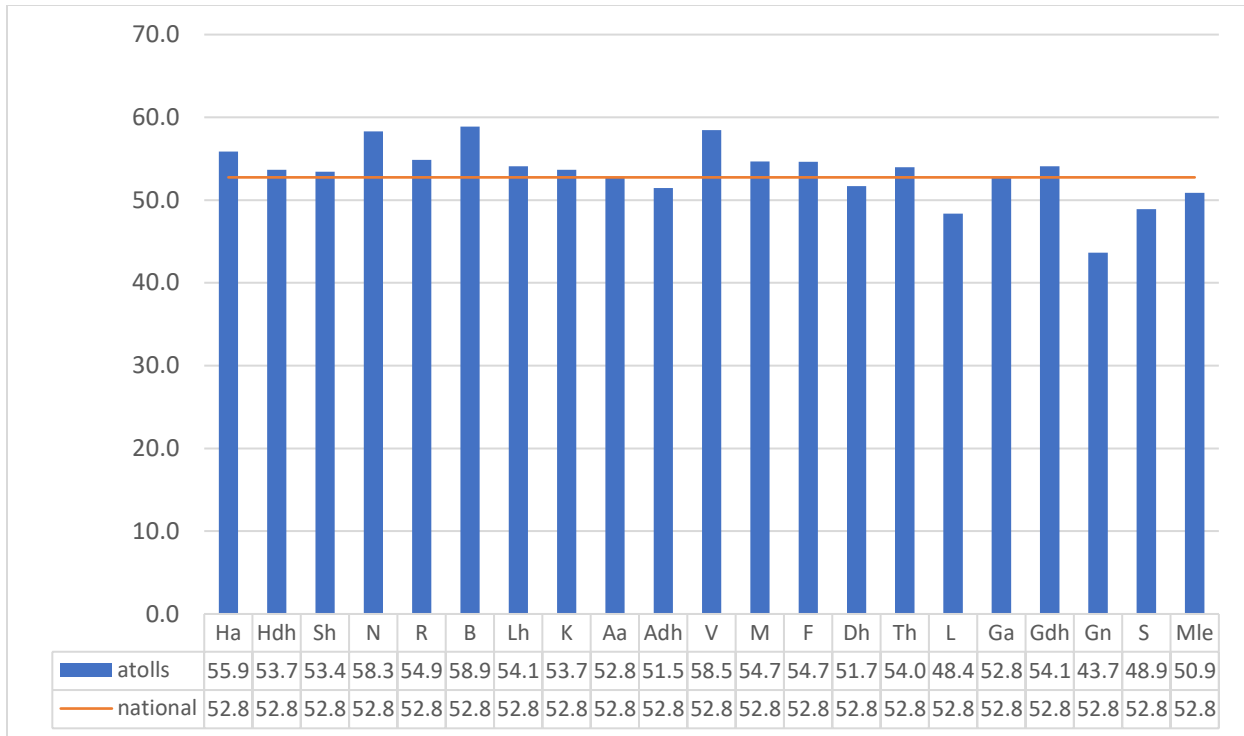


Figure 11 Atoll-wise performance in Dhivehi_Gr4

In addition to the descriptive analysis, further investigations were conducted to test if there is a statistically significant difference between the national average and that of the atolls, using one sample t-test. Table 5 shows the results of the t-tests for all the 20 atolls and Male'. According to the results in Table 5, the difference in student performance is statistically significant for a number of atolls as indicated in bold. Those atolls that scored a significantly higher mean score are Haa Alif, Noonu, Baa, and Vaavu, while those that scored significantly lower mean scores are Male', Laamu, Gnaviyani, and Seenu atoll.

Table 5 Comparison of atoll and national performance

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	2.541	222	0.012	3.13018	0.7030	5.5574
Hdh	0.963	405	0.336	0.91278	-0.9505	2.7761
Sh	0.628	250	0.530	0.68785	-1.4681	2.8437
N	3.347	105	0.001	5.55774	2.2652	8.8503
R	1.841	221	0.067	2.13243	-0.1502	4.4150
B	5.246	185	0.000	6.12984	3.8245	8.4352
Lh	0.782	68	0.437	1.34043	-2.0819	4.7627
K	0.769	227	0.442	0.92868	-1.4494	3.3068
Aa	0.005	157	0.996	0.00639	-2.7261	2.7389
Adh	-0.848	141	0.398	-1.29634	-4.3186	1.7259

V	2.245	39	0.031	5.71700	0.5656	10.8684
M	0.922	69	0.359	1.90514	-2.2149	6.0251
F	0.868	85	0.388	1.90116	-2.4516	6.2539
Dh	-0.599	85	0.551	-1.06221	-4.5872	2.4628
Th	0.949	162	0.344	1.21773	-1.3173	3.7528
L	-2.737	159	0.007	-4.38313	-7.5462	-1.2200
Ga	0.034	107	0.973	0.05769	-3.2732	3.3885
Gdh	1.083	210	0.280	1.32417	-1.0859	3.7342
Gn	-4.567	105	0.000	-9.07991	-13.0223	-5.1375
S	-3.274	218	0.001	-3.83274	-6.1397	-1.5257
Mle	-3.223	1067	0.001	-1.84996	-2.9763	-0.7236

Figure 12 shows the atoll-wise as well as national performance of students based on gender in Dhivehi_Gr4. As seen in Figure 12, boys performed slightly better at national level based on percentage mean scores whereby the mean for boys and girls are 53.0 and 52.5 respectively. At the atoll level boys performed better in almost 50% of the cases while girls did better in the other 50%. Most of these differences are not large as depicted by the bars. The largest difference is observed in Vaavu atoll where boys performed better (M = 62.0) than girls (M = 54.1). The second largest difference is observed in Gaafu Dhaalu atoll where girls did better (M = 56.5) than boys (M = 51.4). The third largest difference is noticed in Dhaalu atoll where, once again, girls did better (M = 53.8) than boys (M = 49.3).

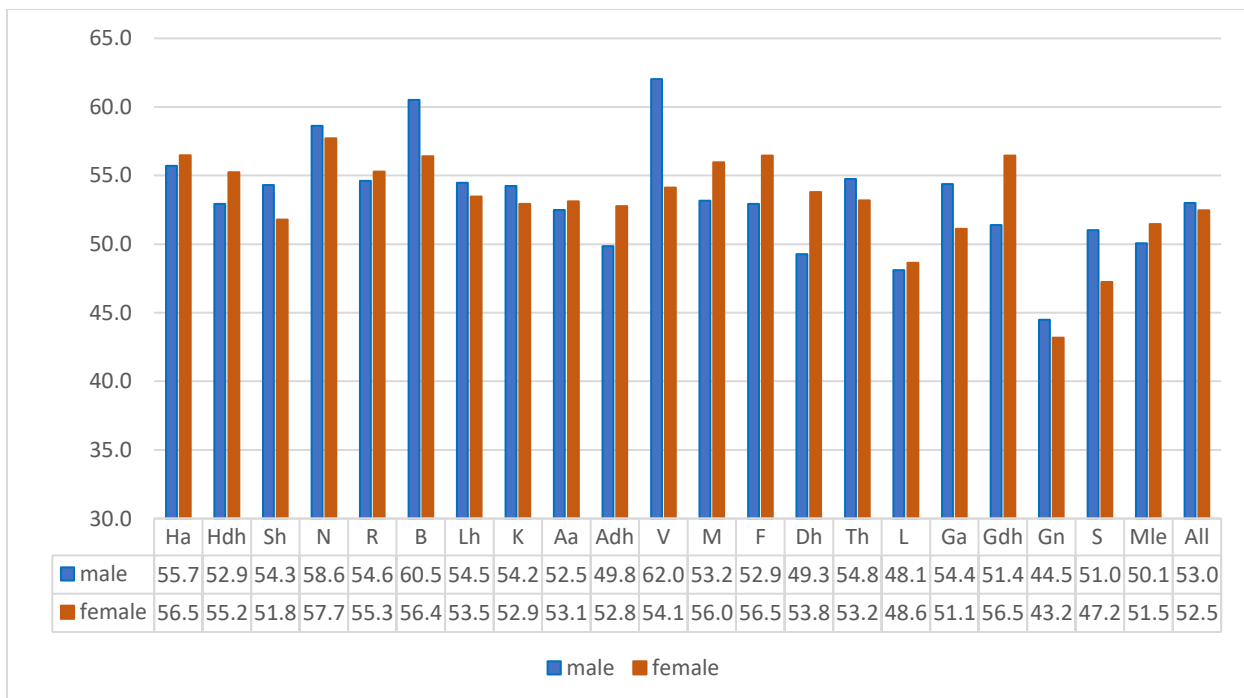


Figure 12 Gender-based, atoll-wise performance in Dhivehi_Gr4

Further to these descriptive analyses, independent sample t-test was used to test if there is a statistically significant difference between boys and girls at the national as well as atoll levels. According to the results in Table 6, despite the visible differences in the descriptive analyses, there is no statistically significant difference in performance between boys and girls except for the results of Gaafu Dhaalu atoll where girls outperform boys by a mean difference of 5.07%.

Table 6 Gender-wise comparison of performance at atoll and national level

Atoll	F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
Ha	0.191	0.662	-0.266	221	0.791	-0.781	2.939	-6.572	5.010
Hdh	0.336	0.562	-1.131	404	0.259	-2.306	2.039	-6.315	1.703
Sh	0.343	0.559	1.091	249	0.276	2.509	2.299	-2.019	7.038
N	0.972	0.327	0.259	104	0.796	0.912	3.522	-6.072	7.896
R	0.246	0.620	-0.277	220	0.782	-0.660	2.378	-5.345	4.026
B	0.196	0.658	1.728	184	0.086	4.104	2.375	-0.581	8.789
Lh	2.629	0.110	0.278	67	0.782	0.989	3.563	-6.123	8.102
K*	4.254	0.040	0.526	189	0.600	1.314	2.498	-3.615	6.242
Aa	2.280	0.133	-0.224	156	0.823	-0.626	2.798	-6.152	4.900
Adh	0.609	0.437	-0.951	140	0.343	-2.923	3.073	-8.999	3.154
V	0.155	0.696	1.572	38	0.124	7.902	5.025	-2.272	18.075
M	0.331	0.567	-0.673	68	0.503	-2.795	4.154	-11.083	5.494
F	0.147	0.702	-0.802	84	0.425	-3.520	4.389	-12.247	5.208
Dh	0.160	0.690	-1.274	84	0.206	-4.513	3.541	-11.556	2.529
Th	2.570	0.111	0.611	161	0.542	1.572	2.573	-3.508	6.652
L	0.068	0.795	-0.163	158	0.871	-0.523	3.215	-6.874	5.827
Ga	0.015	0.902	0.970	106	0.334	3.262	3.364	-3.407	9.931
Gdh	0.139	0.710	-2.085	209	0.038	-5.067	2.430	-9.859	-0.276
Gn	1.362	0.246	0.317	104	0.752	1.313	4.141	-6.899	9.524
S	0.004	0.950	1.603	217	0.110	3.765	2.348	-0.863	8.393
Mle	0.225	0.635	-1.210	1066	0.227	-1.415	1.170	-3.710	0.880
All	0.097	0.756	0.957	4306	0.339	0.535	0.559	-0.560	1.630

* results for unequal variances reported

3. Skill-wise performance

The 31 items in the NALO 2021 Dhivehi_Gr4 tested a total of eight major language skills (competencies). These are (i) parts of speech and tenses, C5, (ii) spelling, C2, (iii) punctuation, C3, (iv) general knowledge, C9, (v) letter writing, C10, (vi) comprehension of intermediate level text, C7a, (vii) comprehension of pictures, C7b and (viii) comprehension of difficult text, C8.

Figure 13 shows the performance in these competencies at the national level. According to Figure 13, students performed the best in spelling (M = 78.13) while they demonstrated the poorest performance in general knowledge (M = 29.54).

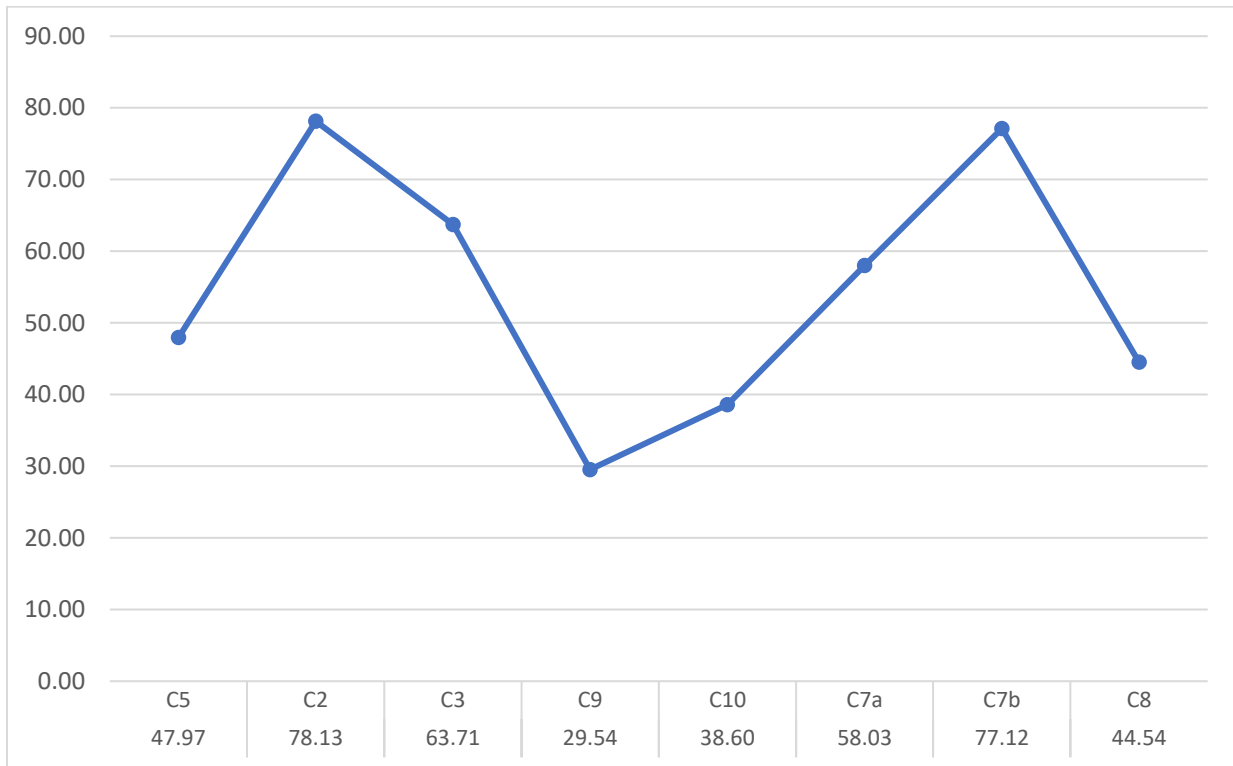


Figure 13 Skill-wise performance in Dhivehi_Gr4

Figure 14 shows the performance in C5 (parts of speech and tenses) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted from Figure 14, 11 of the atolls scored equal to or higher than the national average while the remaining 10 scored lower. The highest scoring atoll is Baa atoll (M = 55.3) while the lowest scoring atoll is Gnaviyani atoll (M = 38.4). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 7. As evident from Table 7, Shaviyani and Gnaviyani atolls performed significantly lower than the national average while Baa atoll performed significantly higher.

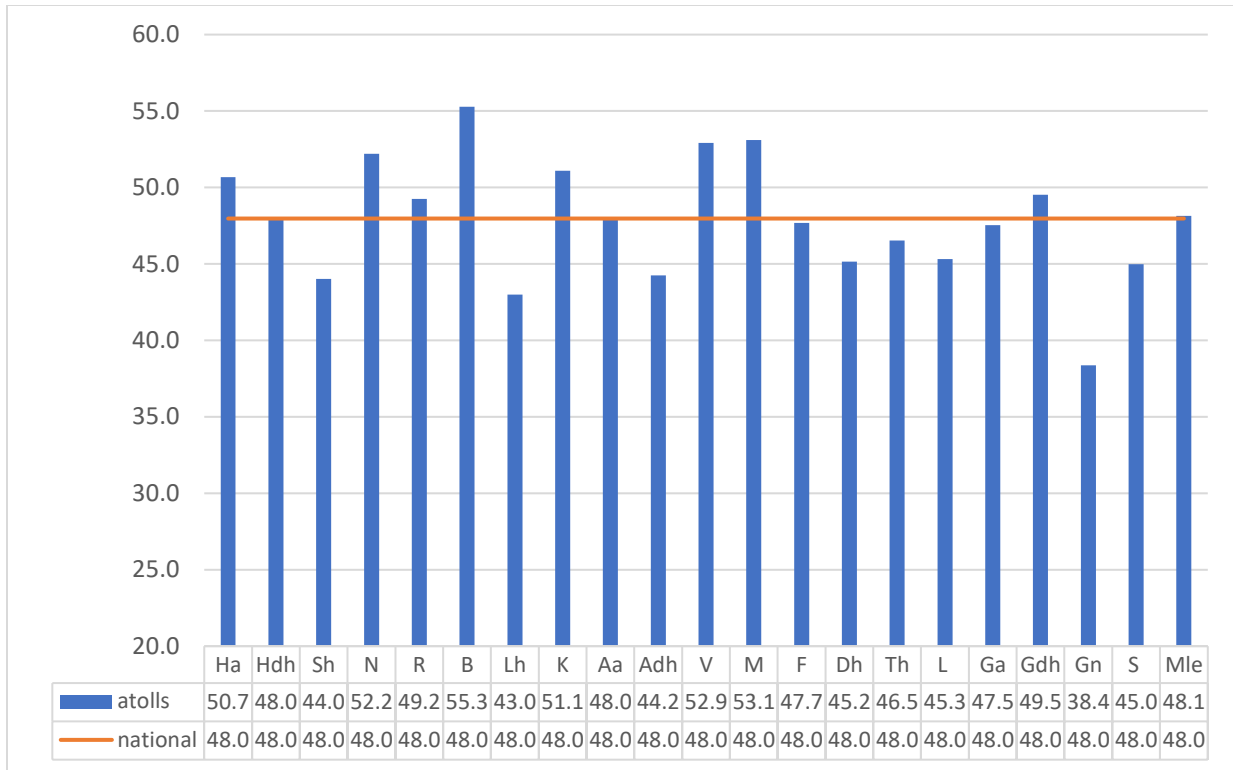


Figure 14 Atoll-wise performance in C5a, Dhivehi_Gr4

Table 7 Comparison of performance in C5a, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Sh	-2.787	250	0.006	-3.976	-6.786	-1.166
B	4.333	185	0.000	7.287	3.969	10.604
Gn	-3.902	105	0.000	-9.635	-14.532	-4.739

Figure 15 shows the performance in C2 (spelling) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted from Figure 15, 16 of the atolls scored equal to or higher than the national average while the remaining 5 scored lower. The highest scoring atoll is Vaavu atoll (M = 88.8) while the lowest scoring atoll is Gnaviyani atoll (M = 64.2). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 8. As evident from Table 8, Noonu, Baa and Vaavu atoll performed significantly higher than the national average while Laamu, Gnaviyani, and Seenu atoll performed significantly lower.

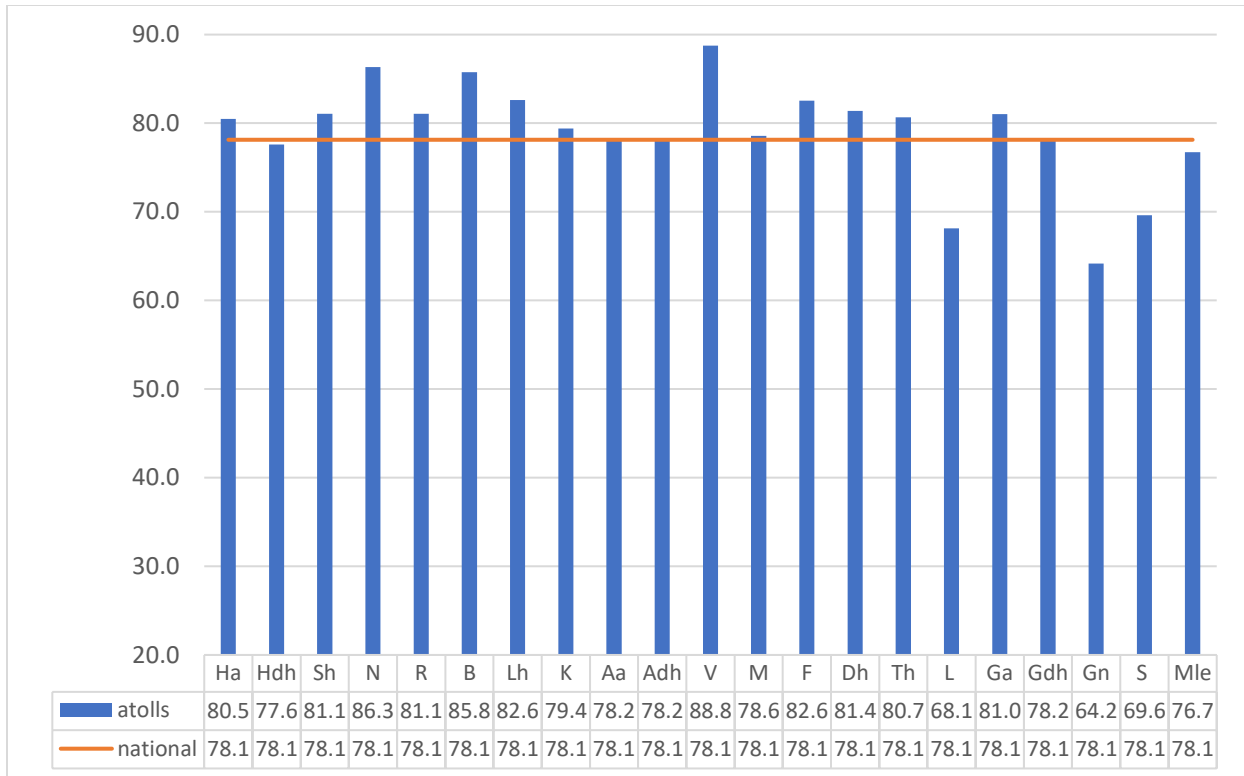


Figure 15 Atoll-wise performance in C2, Dhivehi_Gr4

Table 8 Comparison of performance in C2, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
N	3.112	105	0.002	8.22075	2.9830	13.4585
B	3.941	185	0.000	7.65269	3.8218	11.4836
V	2.808	39	0.008	10.65000	2.9790	18.3210
L	-3.373	159	0.001	-9.97500	-15.8150	-4.1350
Gn	-3.636	105	0.000	-13.94906	-21.5551	-6.3431
S	-3.733	218	0.000	-8.46530	-12.9353	-3.9953

Figure 16 shows the performance in C3 (punctuation) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 16, 10 of the atolls scored equal to or higher than the national average while the remaining 11 scored lower. The highest scoring atoll is Vaavu atoll (M = 72.5) while the lowest scoring atoll is Laamu atoll (M = 51.3). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 9. As evident from Table 9, Baa atoll performed significantly higher than the national average while Laamu, Gaafu Alif, and Gnaviyani atoll performed significantly lower.

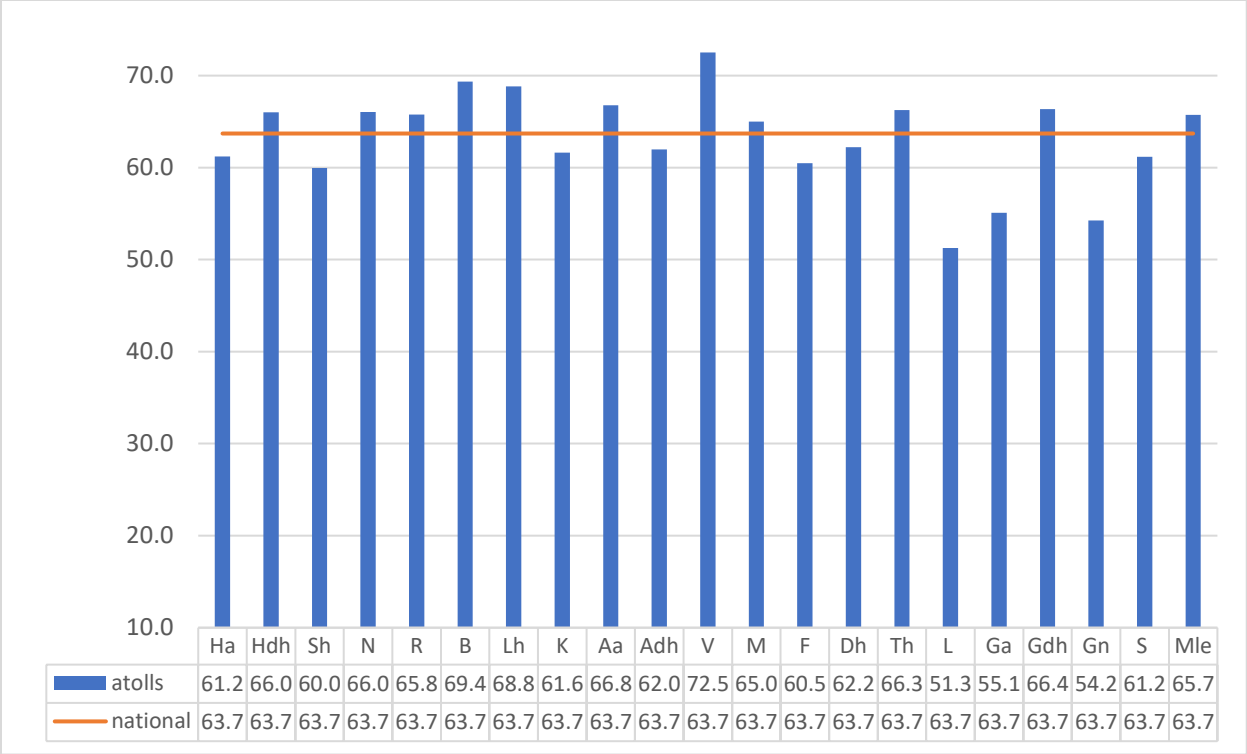


Figure 16 Atoll-wise performance in C3, Dhivehi_Gr4

Table 9 Comparison of performance in C3, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
B	2.287	185	0.023	5.655	0.777	10.532
L	-4.099	159	0.000	-12.450	-18.449	-6.451
Ga	-2.432	107	0.017	-8.607	-15.622	-1.593
Gn	-2.285	105	0.024	-9.455	-17.660	-1.250

Figure 17 shows the performance in C9 (general knowledge) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 17, 10 of the atolls scored equal to or higher than the national average while the remaining 11 scored lower. The highest scoring atoll is Baa atoll (M = 39.1) while the lowest scoring atoll is Gnaviyani atoll (M = 25.5). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 10. As evident from Table 10, Baa and Thaa atoll performed significantly higher than the national average while Gnaviyani atoll and Male’ performed significantly lower.

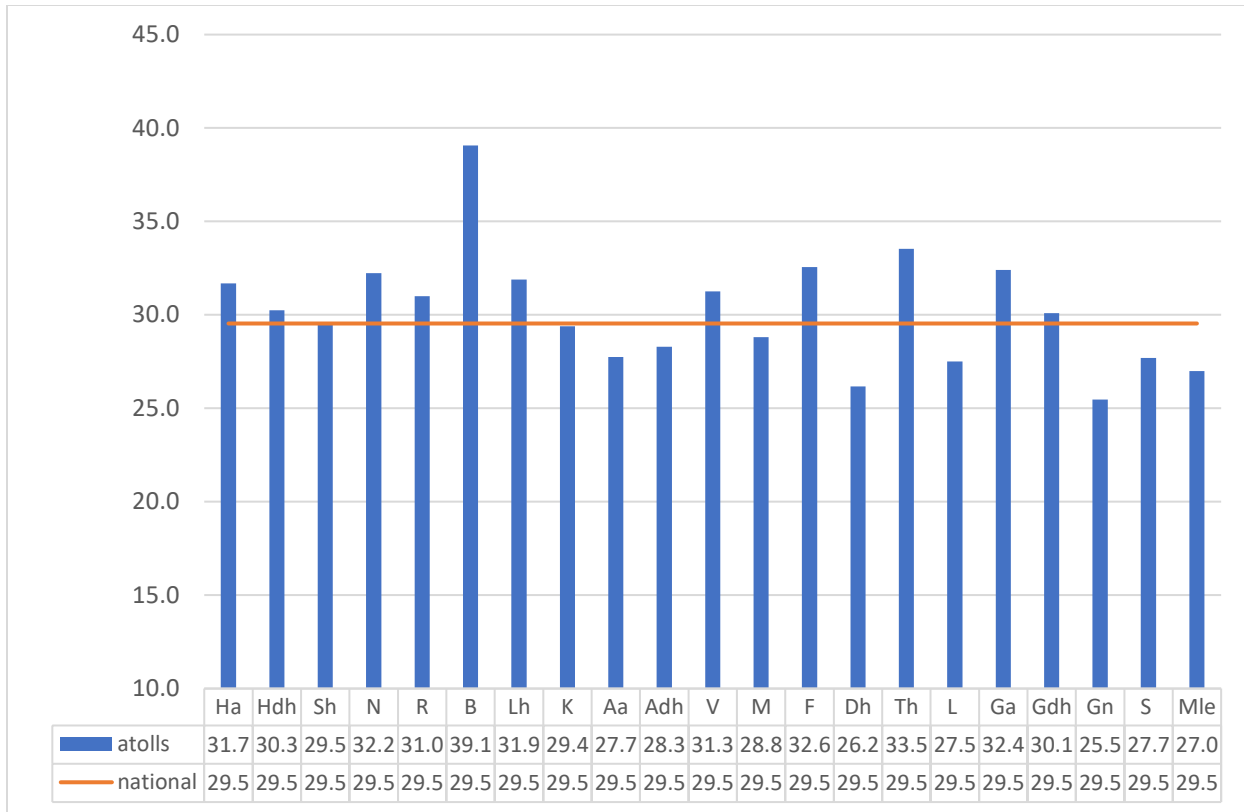


Figure 17 Atoll-wise performance in C9, Dhivehi_Gr4

Table 10 Comparison of performance in C9, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
B	6.530	185	0.000	9.568	6.677	12.459
Th	2.552	162	0.012	4.038	0.914	7.162
Gn	-2.384	105	0.019	-4.028	-7.379	-0.678
Mle	-4.426	1067	0.000	-2.502	-3.612	-1.393

Figure 18 shows the performance in C10 (letter writing) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted from Figure 18, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. The highest scoring atoll is Vaavu atoll (M = 52.5) while the lowest scoring atoll is Gnaviyani atoll (M = 33.0). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 11. As evident from Table 11, Noonu and Vaavu atoll performed significantly higher than the national average while Laamu atoll performed significantly lower.

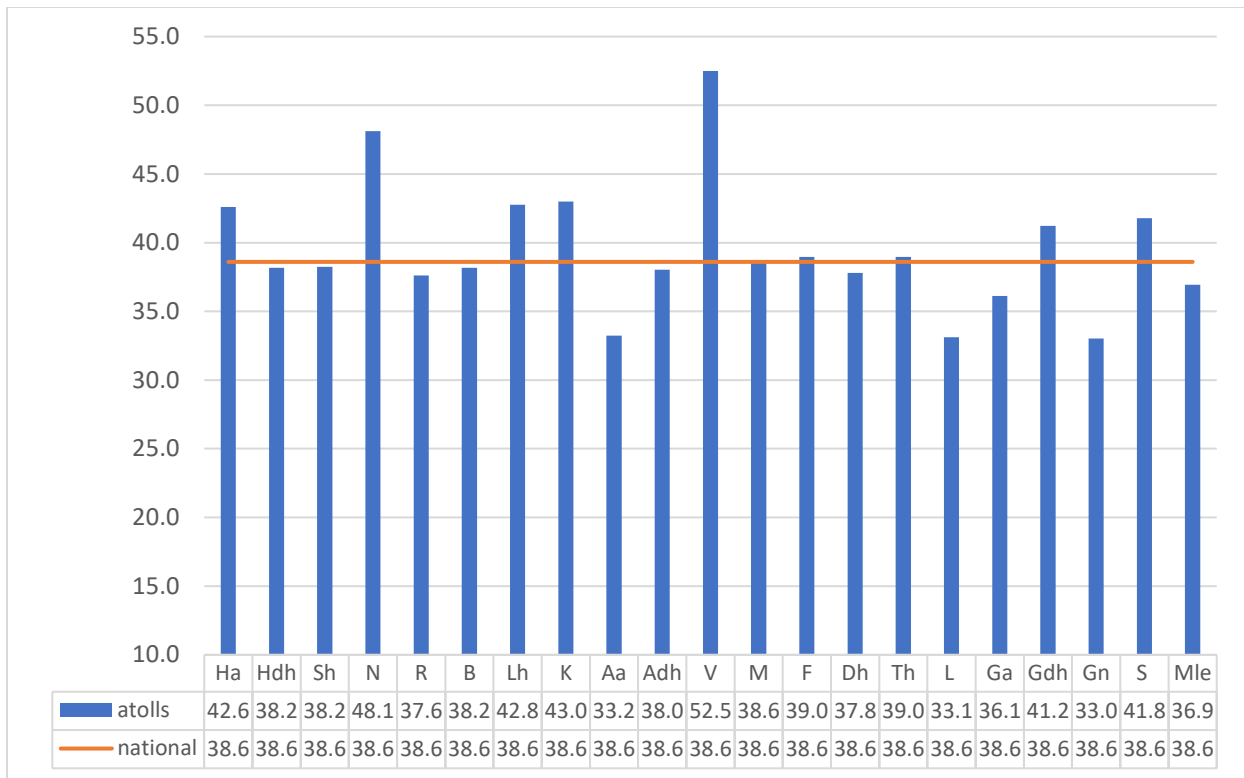


Figure 18 Atoll-wise performance in C10, Dhivehi_Gr4

Table 11 Comparison of performance in C10, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
N	2.686	105	0.008	9.513	2.490	16.536
V	2.158	39	0.037	13.900	0.869	26.931
L	-2.062	159	0.041	-5.475	-10.720	-0.230

Figure 19 shows the performance in C7a (comprehension of intermediate level text) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted from Figure 19, 14 of the atolls scored equal to or higher than the national average while the remaining 7 scored lower. The highest scoring atoll is Noonu atoll (M = 65.5) while the lowest scoring atoll is Gnaviyani atoll (M = 46.4). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 12. As evident from Table 12, Haa Alif and Noonu atoll performed significantly higher than the national average while Male', Gnaviyani, and Seenu atoll performed significantly lower.

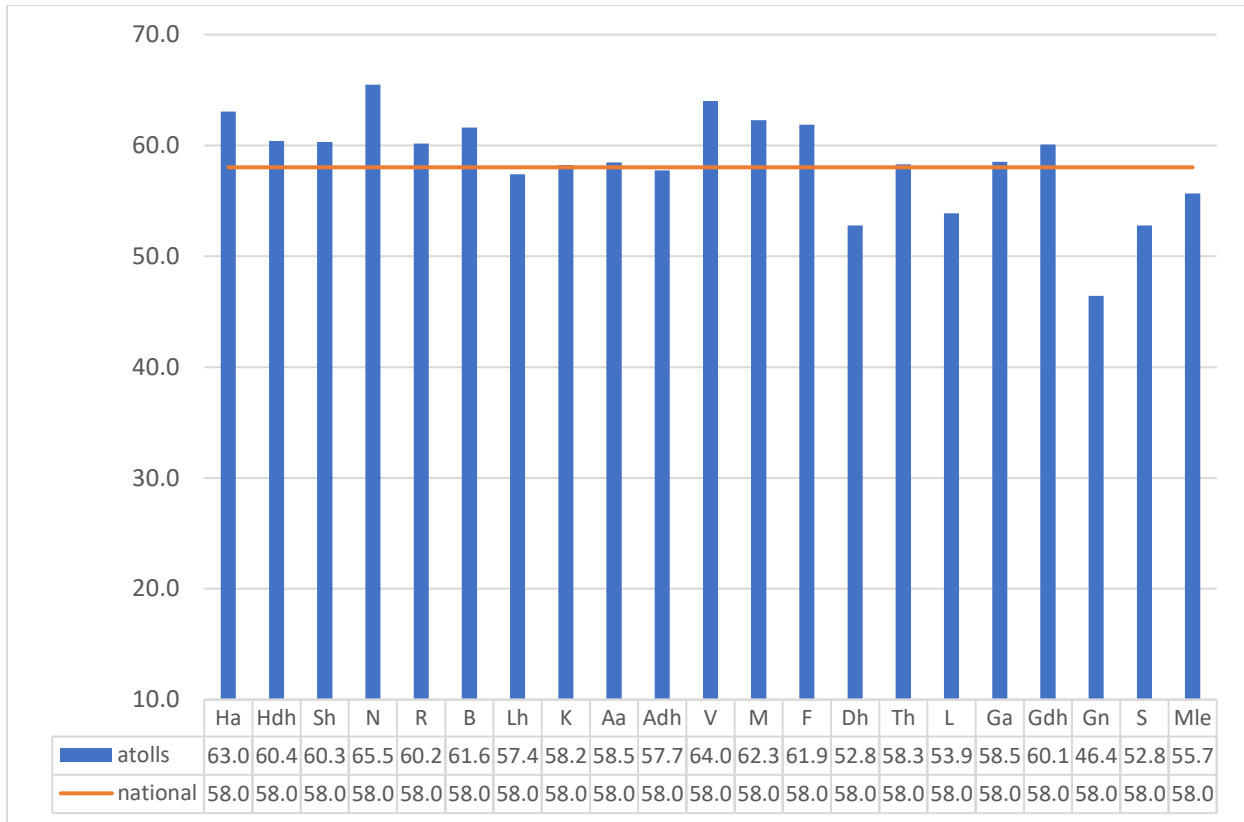


Figure 19 Atoll-wise performance in C7a, Dhivehi_Gr4

Table 12 Comparison of performance in C7a, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	2.500	222	0.013	5.049	1.069	9.029
N	2.449	105	0.016	7.472	1.421	13.522
Gn	-3.698	105	0.000	-11.585	-17.797	-5.373
S	-2.759	218	0.006	-5.215	-8.940	-1.489
Mle	-2.481	1067	0.013	-2.345	-4.199	-0.490

Figure 20 shows the performance in C7b (comprehension of pictures) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted from Figure 20, 13 of the atolls scored equal to or higher than the national average while the remaining 8 scored lower. The highest scoring atoll is Lhaviyani atoll ($M = 84.1$) while the lowest scoring atoll is Gnaviyani atoll ($M = 65.7$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 13. As evident from Table 13, Haa Alif, Shaviyani, Noonu, Raa, Baa, and

Lhaviyani atoll performed significantly higher than the national average while Gnaviyani and Seenu atoll, and Male' performed significantly lower.

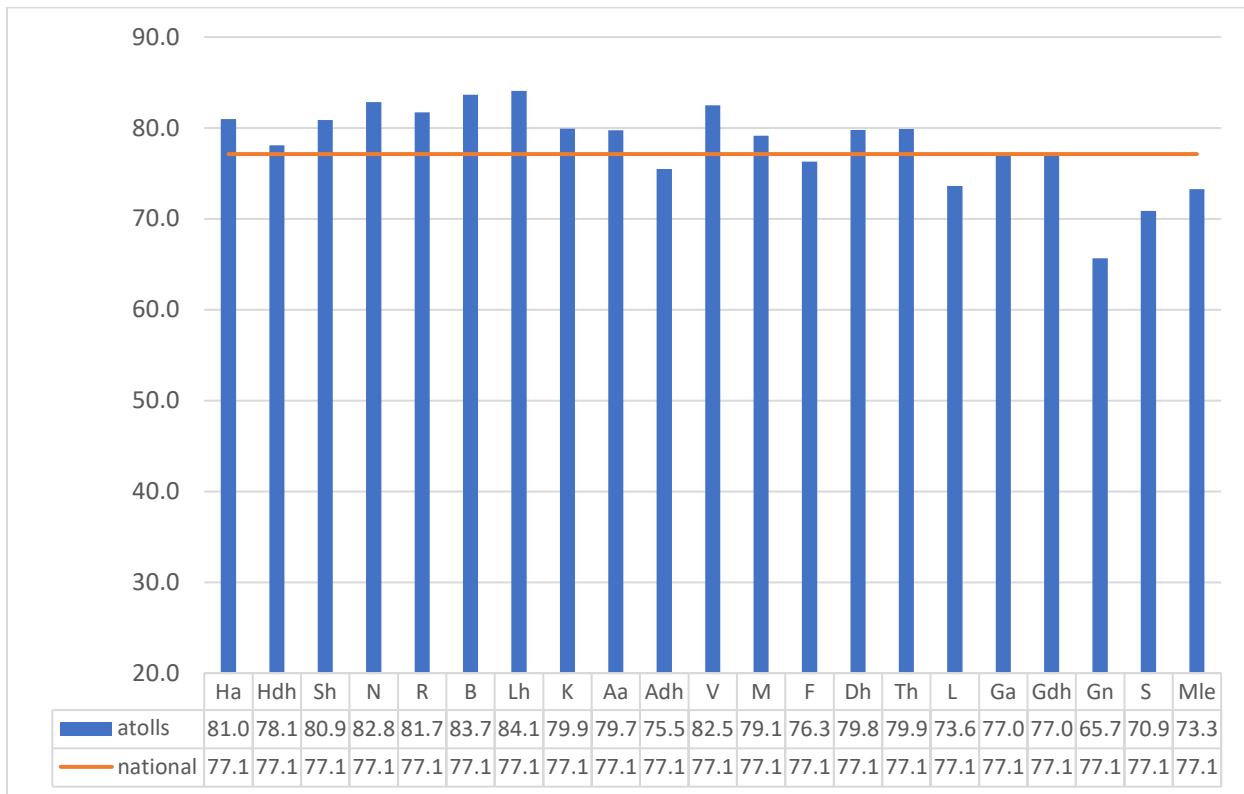


Figure 20 Atoll-wise performance in C7b, Dhivehi_Gr4

Table 13 Comparison of performance in C7b, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	2.310	222	0.022	3.887	0.570	7.203
Sh	2.477	250	0.014	3.776	0.774	6.779
N	2.340	105	0.021	5.730	0.874	10.586
R	2.772	221	0.006	4.612	1.334	7.890
B	4.159	185	0.000	6.556	3.446	9.666
Lh	2.713	68	0.008	6.958	1.840	12.076
Gn	-3.571	105	0.001	-11.440	-17.791	-5.088
S	-3.395	218	0.001	-6.232	-9.851	-2.614
Mle	-4.374	1067	0.000	-3.823	-5.538	-2.108

Figure 21 shows the performance in C8 (comprehension of difficult text) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

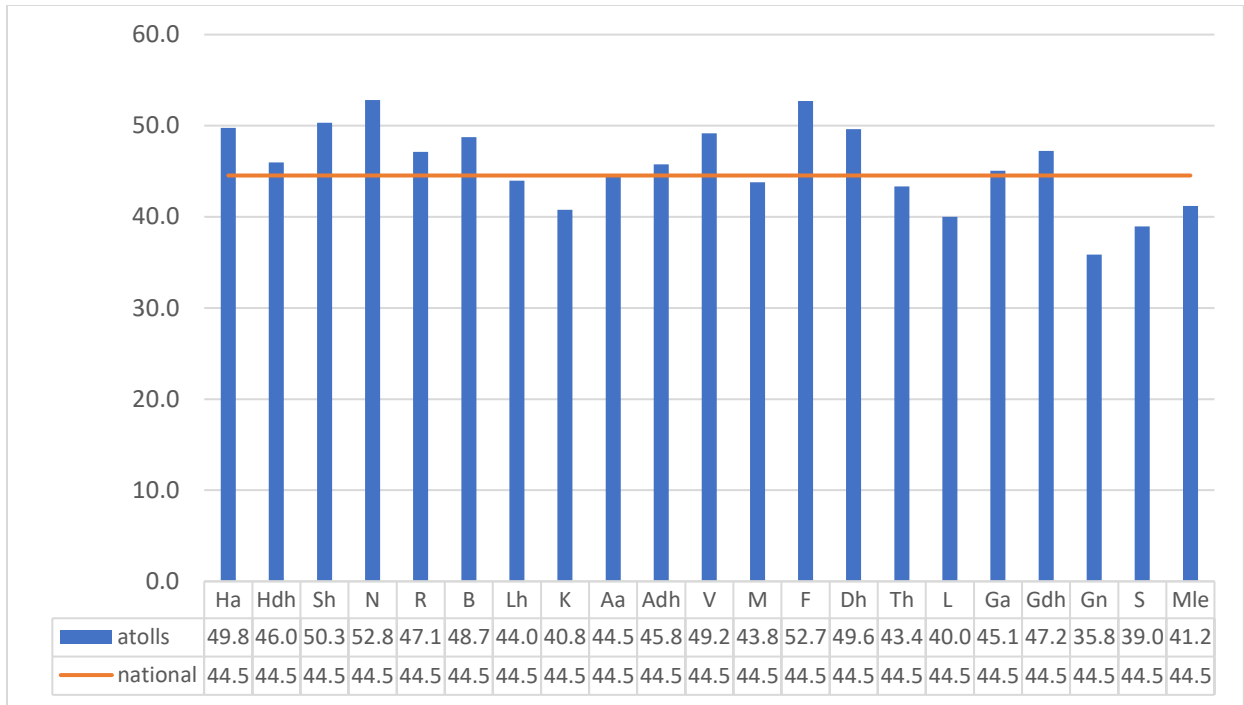


Figure 21 Atoll-wise performance in C8, Dhivehi_Gr4

As depicted from Figure 21, 13 of the atolls scored equal to or higher than the national average while the remaining 8 scored lower. The highest scoring atoll is Noonu atoll (M = 52.8) while the lowest scoring atoll is Gnaviyani atoll (M = 35.8). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 14. As evident from Table 14, Haa Alif, Shaviyani, Noonu, and Faafu atoll performed significantly higher than the national average while Male', Gnaviyani, and Seenu atoll performed significantly lower.

Table 14 Comparison of performance in C8, Dhivehi_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	2.333	222	0.021	5.276	0.820	9.731
Sh	2.553	250	0.011	5.832	1.333	10.331
N	2.494	105	0.014	8.330	1.707	14.952
F	2.185	85	0.032	8.213	0.740	15.686
Gn	-2.746	105	0.007	-8.651	-14.897	-2.405
S	-2.476	218	0.014	-5.536	-9.942	-1.129
Mle	-3.062	1067	0.002	-3.302	-5.418	-1.186

GRADE 4 ENGLISH

1. Response Distribution

A total of 4,315 students from 171 schools across the nation sat the NALO 2021 English assessment. Figure 22 shows the gender-wise breakdown of the candidates while Figure 23 shows the atoll-wise breakdown of the same.

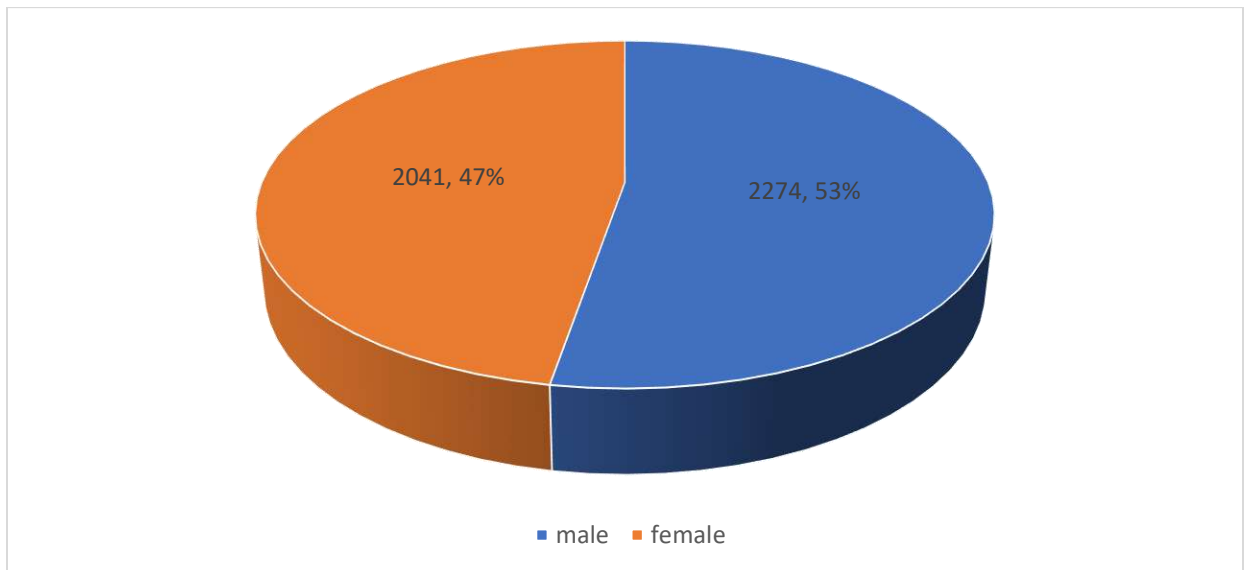


Figure 22 Gender-wise distribution of candidates (English_Gr4)

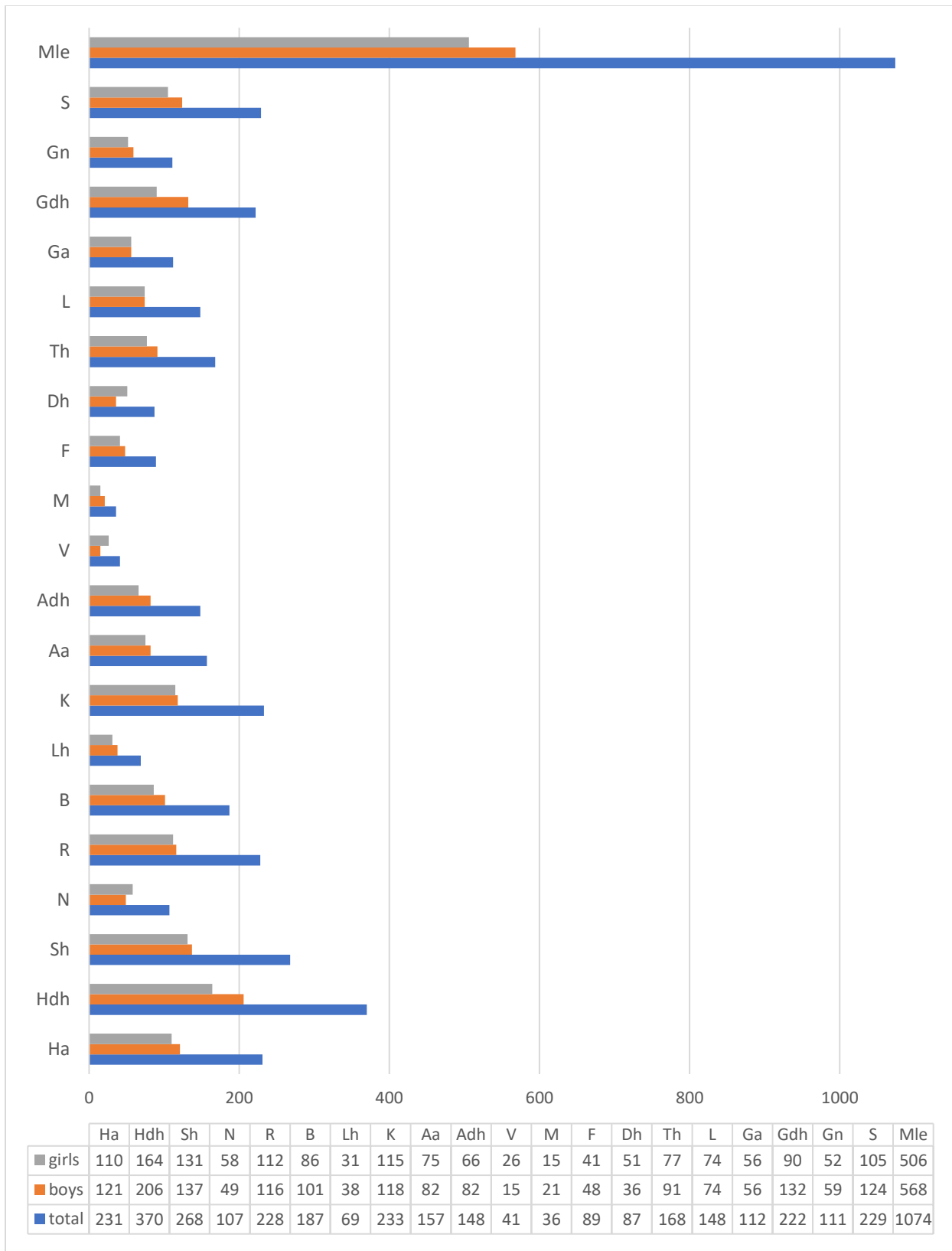


Figure 23 Atoll-wise distribution of candidates (English_Gr4)

Further, Table 15 shows the response patterns for the 32 items in English assessment of the NALO 2021. As seen from the Table 15, more than 5% of students did not answer question number 19 and 31. None of the items was answered by all the students. The least skipped item was question 2 which was answered by 99.05% students.

Table 15 Response patterns for English_Gr 4

Item	Correct (N , %)	Wrong (N , %)	Missing (N , %)
C1_1	3705 , 85.86	557 , 12.91	53 , 1.23
C2_2	2278 , 52.79	1996 , 46.26	41 , 0.95
C2_3	592 , 13.72	3625 , 84.01	98 , 2.27
C3_4	2649 , 61.39	1561 , 36.18	105 , 2.43
C6_5	2439 , 56.52	1768 , 40.97	108 , 2.50
C6_6	2665 , 61.76	1563 , 36.22	87 , 2.02
C4b_7	2990 , 69.29	1133 , 26.26	192 , 4.45
C4b_8	1914 , 44.36	2299 , 53.28	102 , 2.36
C4a_9	3638 , 84.31	571 , 13.23	106 , 2.46
C4b_10	2966 , 68.74	1288 , 29.85	61 , 1.41
C4b_11	3590 , 83.20	666 , 15.43	59 , 1.37
C4b_12	1927 , 44.66	2301 , 53.33	87 , 2.02
C5_13	3534 , 81.90	728 , 16.87	53 , 1.23
C5_14	3048 , 70.64	1219 , 28.25	48 , 1.11
C5_15	3270 , 75.78	993 , 23.01	52 , 1.21
C5_16	3569 , 82.71	694 , 16.08	52 , 1.21
C6_17	1971 , 45.68	2268 , 52.56	76 , 1.76
C6_18	2643 , 61.25	1588 , 36.80	84 , 1.95
C6_19	2152 , 49.87	1876 , 43.48	287 , 6.65
C6_20	2035 , 47.16	2186 , 50.66	94 , 2.18
C6_21	3406 , 78.93	834 , 19.33	75 , 1.74
C6_22	2663 , 61.71	1527 , 35.39	125 , 2.90
C6_23	2735 , 63.38	1471 , 34.09	109 , 2.53
C6_24	2880 , 66.74	1332 , 30.87	103 , 2.39
C2_25	2552 , 59.14	1639 , 37.98	124 , 2.87
C6_26	2556 , 59.24	1593 , 36.92	166 , 3.85
C7_27	857 , 19.86	3349 , 77.61	109 , 2.53
C7_28	1666 , 38.61	2536 , 58.77	113 , 2.62
C7_29	1094 , 25.35	3080 , 71.38	141 , 3.27
C7_30	1691 , 39.19	2462 , 57.06	162 , 3.75
C7_31	1401 , 32.47	2691 , 62.36	223 , 5.17
C7_32	2373 , 54.99	1792 , 41.53	150 , 3.48

2. Patterns in student performance

In computing student performance, correct responses were assigned one mark while both wrong and non-responses were assigned zero marks because otherwise, the sample size would significantly decrease, thus affecting the overall findings adversely. Accordingly, Figure 24 shows the national performance of students in English_Gr4 in the NALO 2021.

As inferred from Figure 24, the average performance of students in English_Gr4 in the NALO 2021 is 57.54 as indicated by the mean score. Moreover, 23.5% of students achieved higher than 75th percentile marks (75.00) while 47.5% of students achieved higher than 50th percentile marks (62.50). learning outcomes based on percentile marks. These results indicate that a relatively greater proportion of students achieved higher than the pass mark of 40% in English_Gr4.

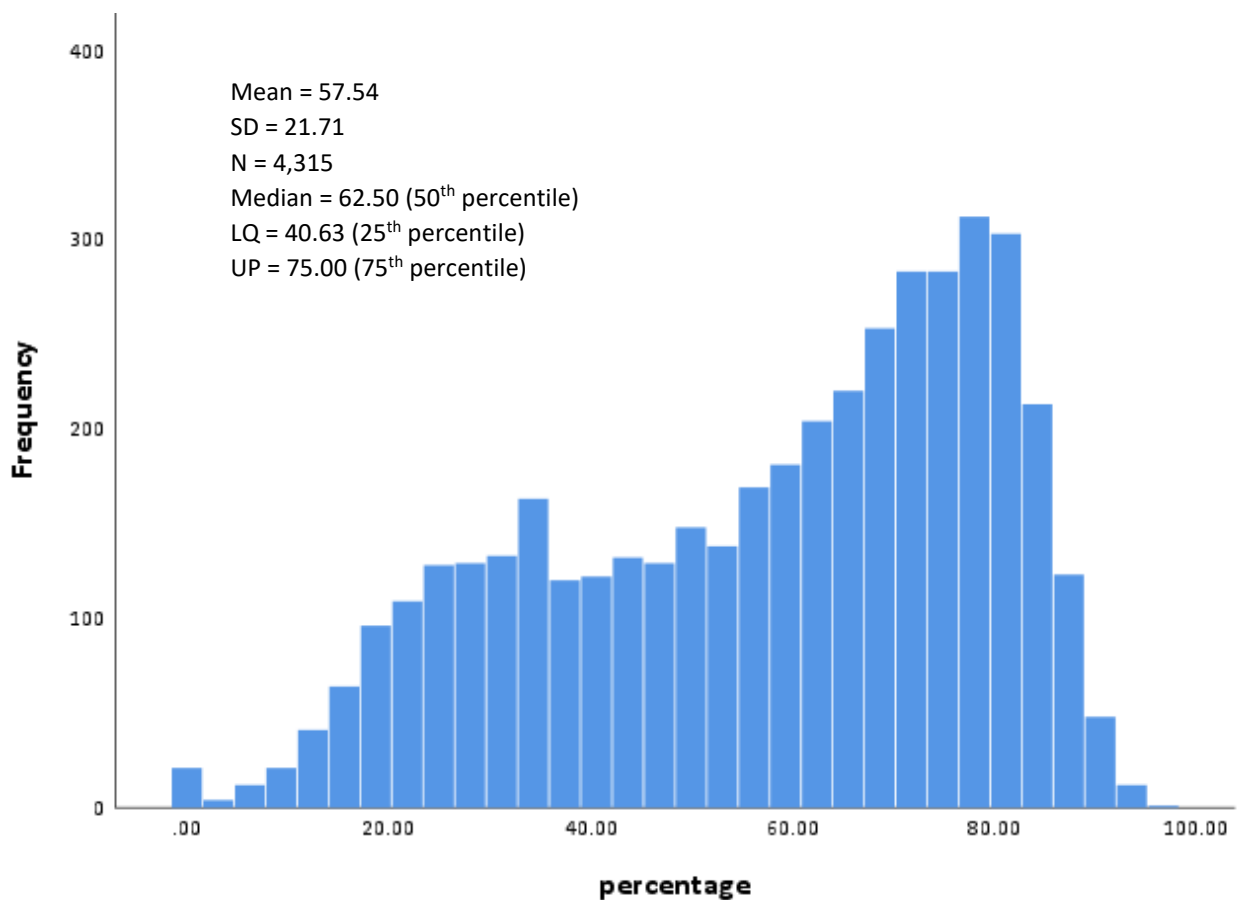


Figure 24 Distribution of student national performance in English_Gr4

Figure 25 shows the atoll-wise average performance of students in English_Gr4 in the NALO 2021. The national average (57.5) is shown by the line graph while the averages for the atolls and Male' are indicated by the bars. As seen from Figure 25, four of the cases scored an average mark equal to or above the national average. Among those that scored above the national average, Male'

score the highest (M = 67.4). On the other hand, Shaviyani atoll scored the lowest below the national average with a mean score of 47.6.

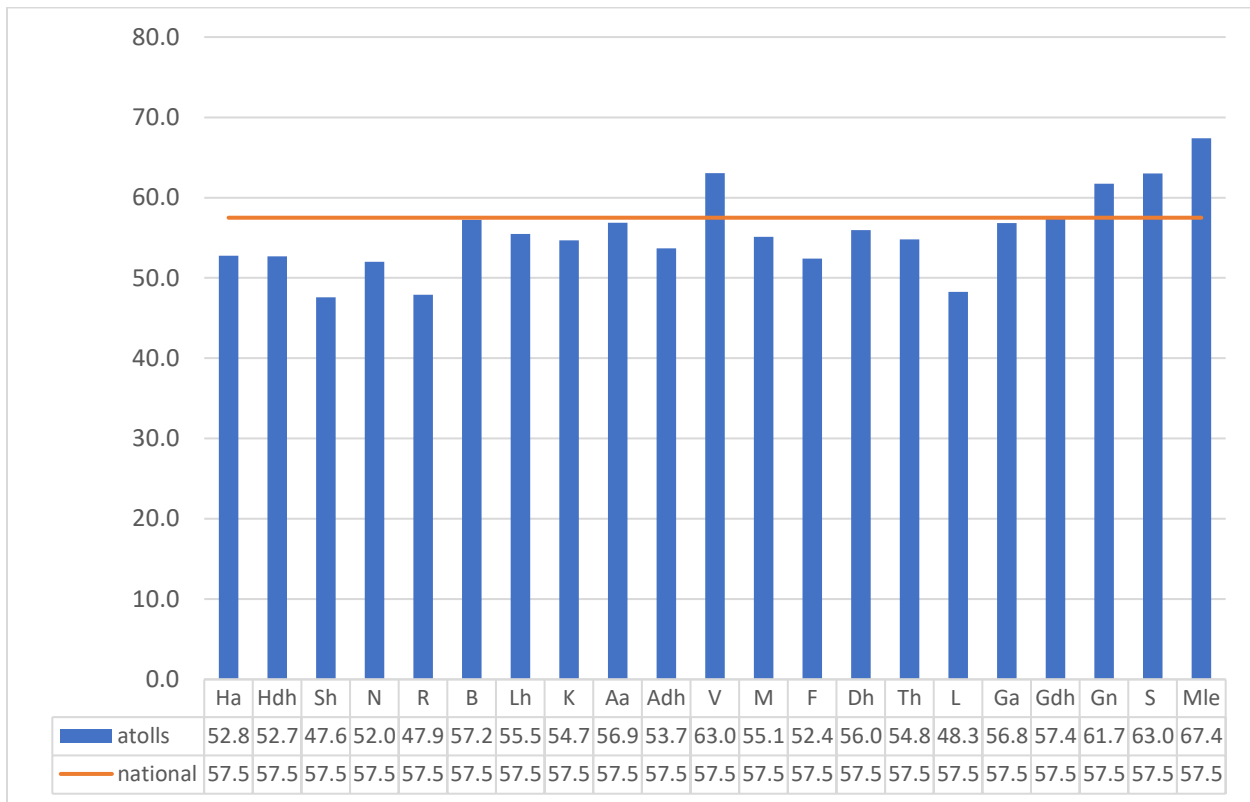


Figure 25 Atoll-wise performance in English_Gr4

In addition to the descriptive analysis, further investigations were conducted to test if there is a statistically significant difference between the national average and that of the atolls, using one sample t-test. Table 16 shows the results of the t-tests for all the 20 atolls and Male'. According to the results in Table 16, the difference in student performance is statistically significant for a number of atolls as indicated in bold. Male', Gnaviyani and Seenu atolls scored a significantly higher mean score while the rest of the highlighted atoll scored significantly lower mean scores.

Table 16 Comparison of atoll and national performance (English_Gr4)

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-3.202	230	0.002	-4.724	-7.631	-1.817
Hdh	-4.023	369	0.000	-4.820	-7.176	-2.464
Sh	-7.789	267	0.000	-9.900	-12.402	-7.397
N	-2.767	106	0.007	-5.482	-9.410	-1.554
R	-6.837	227	0.000	-9.581	-12.342	-6.820
B	-0.180	186	0.858	-0.262	-3.132	2.609

Lh	-0.799	68	0.427	-2.018	-7.058	3.022
K	-2.053	232	0.041	-2.803	-5.494	-0.113
Aa	-0.389	156	0.698	-0.631	-3.831	2.570
Adh	-2.156	147	0.033	-3.824	-7.329	-0.318
V	1.694	40	0.098	5.535	-1.070	12.141
M	-0.734	35	0.468	-2.376	-8.943	4.192
F	-2.176	88	0.032	-5.075	-9.710	-0.441
Dh	-0.777	86	0.440	-1.535	-5.464	2.394
Th	-1.573	167	0.118	-2.717	-6.127	0.693
L	-4.809	147	0.000	-9.229	-13.021	-5.436
Ga	-0.341	111	0.734	-0.662	-4.510	3.186
Gdh	-0.081	221	0.936	-0.121	-3.089	2.846
Gn	2.269	110	0.025	4.242	0.537	7.947
S	4.136	228	0.000	5.494	2.877	8.111
Mle	17.606	1073	0.000	9.888	8.786	10.990

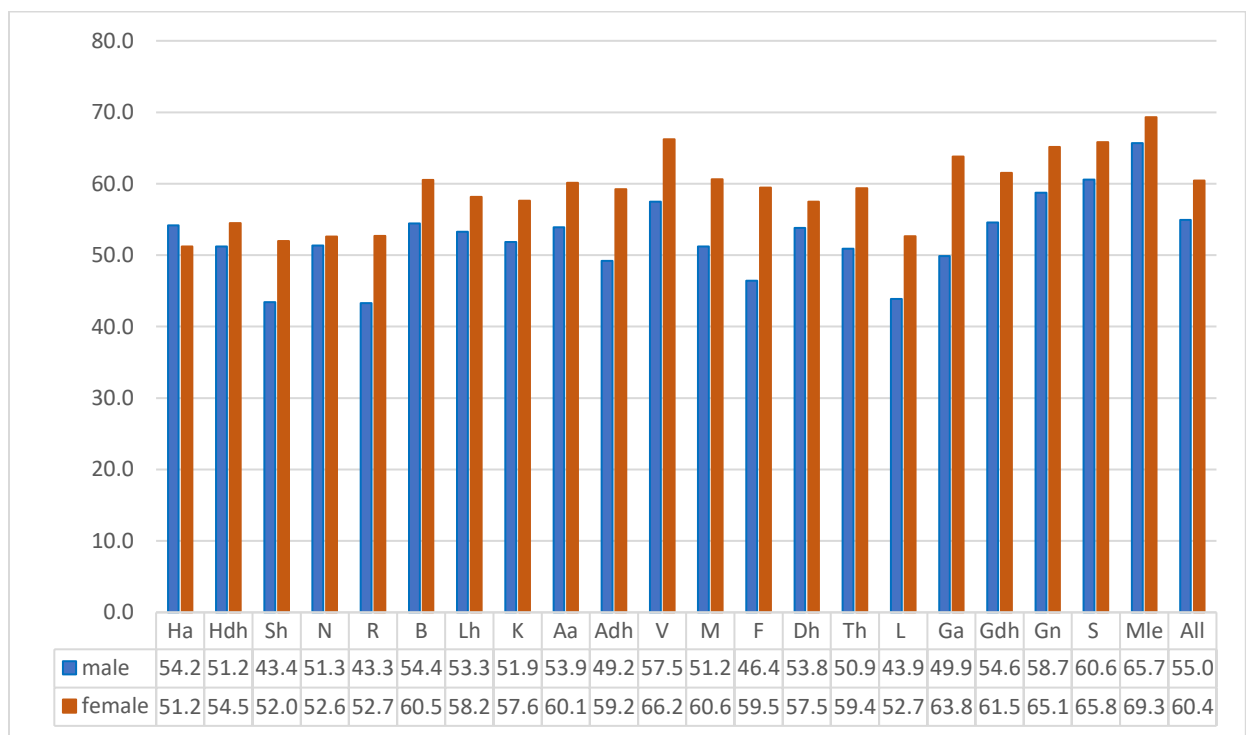


Figure 26 Gender-based, atoll-wise performances in English_Gr4

Figure 26 shows the atoll-wise as well as national performance of students based on gender in English_Gr4. As seen in Figure 26, girls performed better at national level based on percentage mean scores whereby the mean for girls and boys are 60.4 and 55.0 respectively. At the atoll level, girls performed better in all the cases except Haa Alif atoll. The largest difference is observed in Gaafu Alif atoll where girls performed much better (M = 63.8) than boys (M = 49.9).

The least difference is observed in Noonu atoll where the mean scores for girls and boys are 52.6 and 51.3 respectively.

Further to these descriptive analyses, independent sample t-test was used to test if there is a statistically significant difference between boys and girls at the national as well as atoll levels. According to the results in Table 17, there is a statistically significant difference in performance between boys and girls at the national as well as in many of the atolls (as shown in bold), indicating better performance of girls. The difference in mean score at the national level is 5.47 percent.

Table 17 Gender-wise comparison of performance at atoll and national level (English_Gr4)

Atoll	F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
Ha	1.207	0.273	1.003	229	0.317	2.962	2.954	-2.859	8.783
Hdh	0.855	0.356	-1.357	368	0.176	-3.268	2.409	-8.005	1.469
Sh	0.096	0.757	-3.439	266	0.001	-8.572	2.493	-13.480	-3.664
N	0.694	0.407	-0.312	105	0.756	-1.247	3.993	-9.165	6.672
R	0.004	0.949	-3.438	226	0.001	-9.414	2.738	-14.810	-4.018
B	2.112	0.148	-2.113	185	0.036	-6.113	2.893	-11.821	-0.406
Lh	0.046	0.832	-0.960	67	0.341	-4.875	5.081	-15.016	5.266
K	1.167	0.281	-2.123	231	0.035	-5.755	2.711	-11.096	-0.413
Aa	0.948	0.332	-1.940	155	0.054	-6.237	3.215	-12.588	0.114
Adh	0.004	0.950	-2.881	146	0.005	-10.034	3.483	-16.917	-3.150
V	0.000	0.991	-1.297	39	0.202	-8.727	6.728	-22.336	4.882
M	0.055	0.816	-1.461	34	0.153	-9.434	6.458	-22.558	3.690
F	0.459	0.500	-2.900	87	0.005	-13.032	4.493	-21.963	-4.101
Dh	0.290	0.591	-0.910	85	0.365	-3.655	4.017	-11.643	4.332
Th	2.164	0.143	-2.484	166	0.014	-8.482	3.414	-15.223	-1.741
L	1.298	0.257	-2.323	146	0.022	-8.784	3.782	-16.258	-1.309
Ga*	22.005	0.000	-3.786	97	0.000	-13.895	3.670	-21.178	-6.611
Gdh*	14.630	0.000	-2.385	216	0.018	-6.924	2.903	-12.646	-1.202
Gn*	6.276	0.014	-1.759	105	0.081	-6.406	3.642	-13.626	0.815
S*	5.286	0.022	-2.015	227	0.045	-5.248	2.605	-10.381	-0.115
Mle*	30.630	0.000	-3.255	1055	0.001	-3.596	1.105	-5.764	-1.428
All*	63.634	0.000	-8.384	4313	0.000	-5.472	0.653	-6.752	-4.193

* results for unequal variances reported

3. Skill-wise Performance

The 32 items in the English_Gr4 NALO 2021 tested a total of eight major English language skills (competencies). These are (i) knows names of objects, birds and animals not seen in daily life, C1, (ii) knows meanings, spellings, and opposites of words used in daily life, C2, (iii) correct sentence formation, punctuation, and sequencing, C3, (iv) comprehends a simple picture, C4a, (v)

comprehends very simple sentences or a simple paragraph, C4b, (vi) parts of speech, gender, number, tense, etc, C5, (vii) comprehends grade appropriate texts of intermediate difficulty, and identify different text types, C6, and (viii) comprehends complex texts of high difficulty, C7. Figure 27 shows the performance in these competencies at the national level. According to Figure 27, students performed the best in knowing the names of objects, birds and animals that are not seen in daily life (M = 85.86) while they performed the worst in comprehending complex text of high difficulty (M = 35.08).

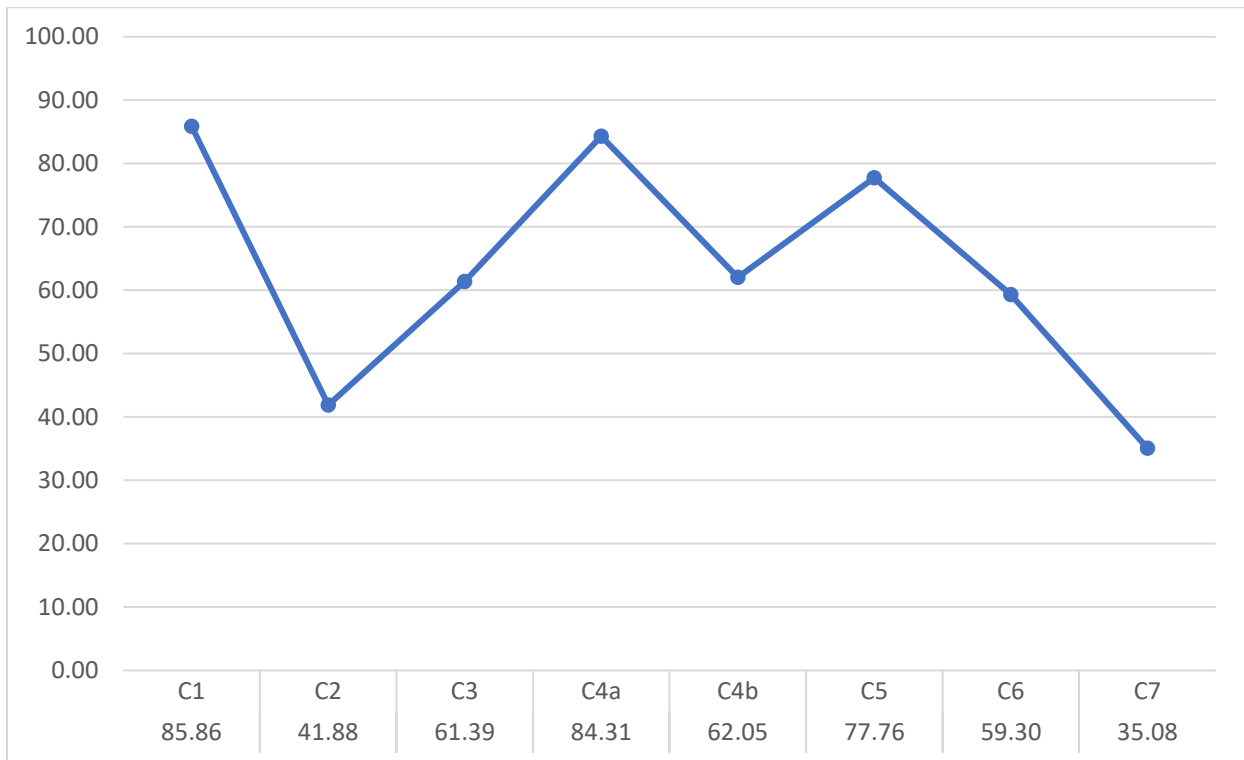


Figure 27 Skill-wise performance in English_Gr4

Figure 28 shows the performance in C1 (knows names of objects, birds, and animals that are not seen in daily life) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 28, 11 of the atolls scored equal to or higher than the national average while the remaining 10 scored lower. Gnaviyani atoll scored the highest (M = 93.7) while the lowest was scored by Raa atoll (M = 73.7). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 18. As evident from Table 18, Gnaviyani and Seenu atolls, and Male' performed significantly higher than the national average while Haa Dhaalu, Shaviyani, and Raa atoll performed significantly lower.

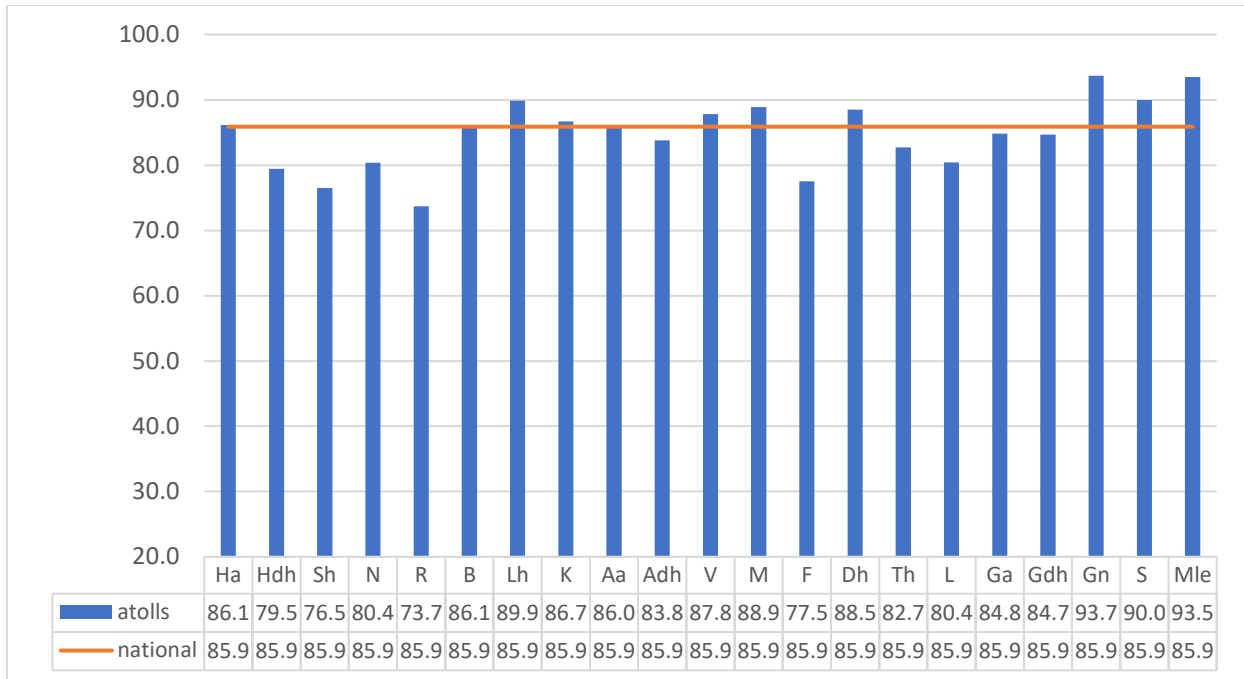


Figure 28 Atoll-wise performance in C1, English_Gr4

Table 18 Comparison of performance in C1, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-3.062	369	0.002	-6.441	-10.576	-2.305
Sh	-3.625	267	0.000	-9.407	-14.517	-4.298
R	-4.180	227	0.000	-12.216	-17.975	-6.457
Gn	3.363	110	0.001	7.794	3.201	12.387
S	2.038	228	0.043	4.056	0.134	7.979
Mle	10.062	1073	0.000	7.582	6.104	9.061

Figure 29 shows the performance in C2 (knows meaning, spelling and opposites of words used in daily life) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 29, 6 of the atolls scored equal to or higher than the national average while the remaining 15 scored lower. Male' scored the highest (M = 54.3) while the lowest was scored by Shaviyani and Raa atoll (M = 30.6). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 19. As evident from Table 19, all the atolls that are listed in the table performed significantly lower than the national average while only Male' performed significantly higher.

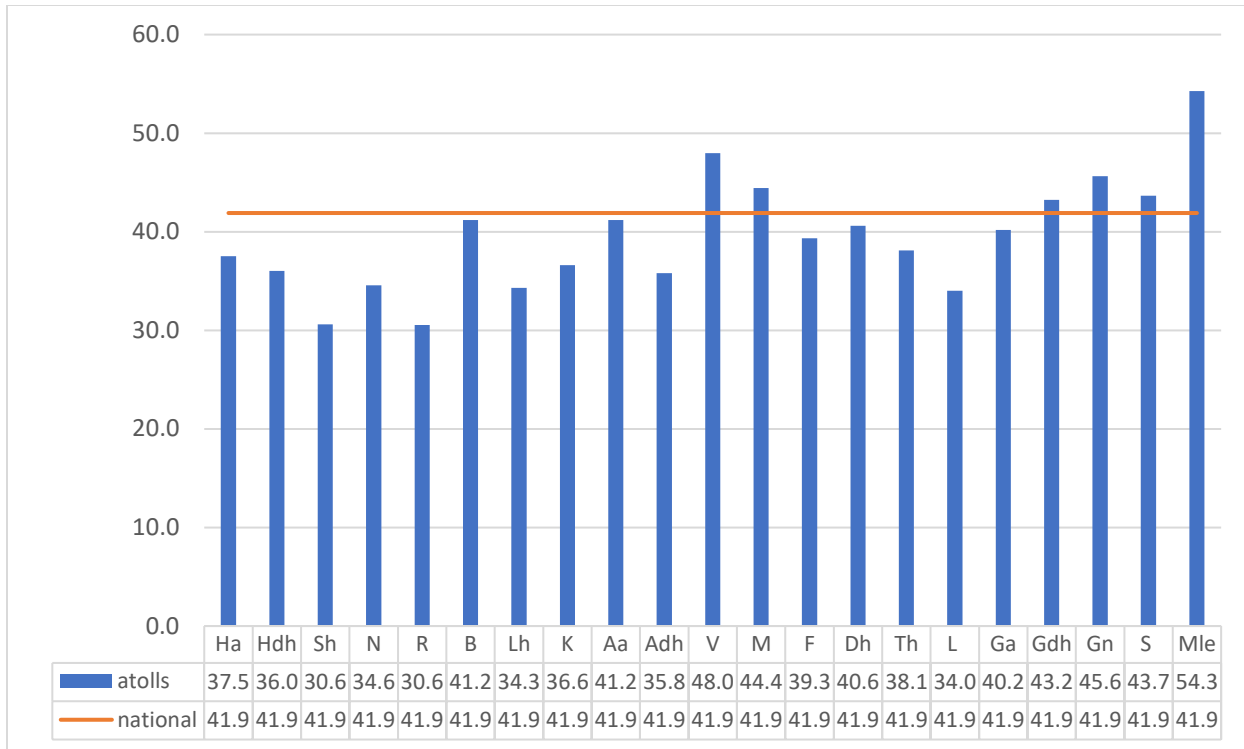


Figure 29 Atoll-wise performance in C2, English_Gr4

Table 19 Comparison of performance in C2, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.447	230	0.015	-4.382	-7.911	-0.854
Hdh	-3.945	369	0.000	-5.864	-8.788	-2.941
Sh	-6.912	267	0.000	-11.304	-14.523	-8.084
N	-2.840	106	0.005	-7.321	-12.433	-2.210
R	-6.057	227	0.000	-11.345	-15.036	-7.654
Lh	-2.304	68	0.024	-7.600	-14.183	-1.018
K	-2.885	232	0.004	-5.276	-8.880	-1.673
Adh	-2.666	147	0.009	-6.090	-10.604	-1.575
L	-3.476	147	0.001	-7.892	-12.379	-3.405
Mle	14.732	1073	0.000	12.384	10.734	14.033

Figure 30 shows the performance in C3 (correct sentence formation, punctuation, and sequencing) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

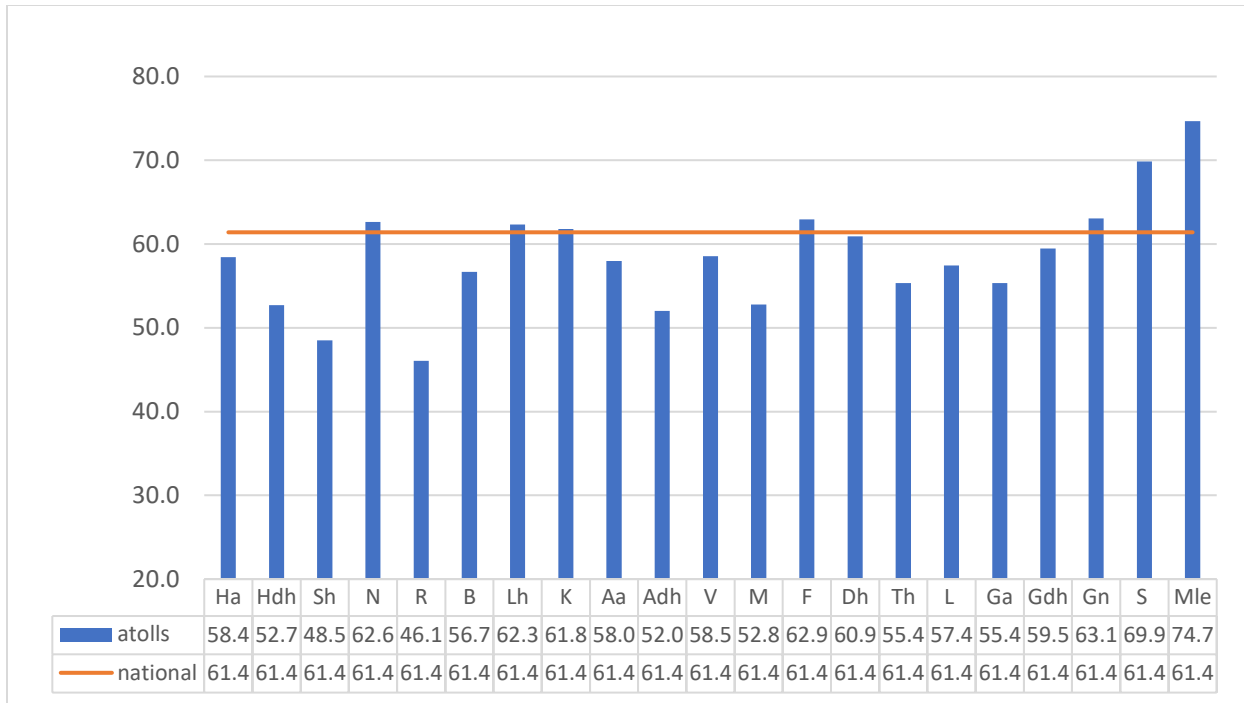


Figure 30 Atoll-wise performance in C3, English_Gr4

As depicted in Figure 30, 7 of the atolls scored equal to or higher than the national average while the remaining 14 scored lower. Male' scored the highest (M = 74.7) while the lowest was scored by Raa atoll (M = 46.1). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 20. As evident from Table 20, Seenu atoll and Male' performed significantly higher than the national average while Haa Dhaalu, Shaviyani, Raa, and Alif Dhaalu atolls performed significantly lower.

Table 20 Comparison of performance in C3, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-3.346	369	0.001	-8.697	-13.808	-3.586
Sh	-4.215	267	0.000	-12.893	-18.915	-6.871
R	-4.639	227	0.000	-15.347	-21.866	-8.829
Adh	-2.275	147	0.024	-9.373	-17.516	-1.230
S	2.787	228	0.006	8.469	2.482	14.456
Mle	9.999	1073	0.000	13.274	10.669	15.879

Figure 31 shows the performance in C4a (comprehends a simple picture) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

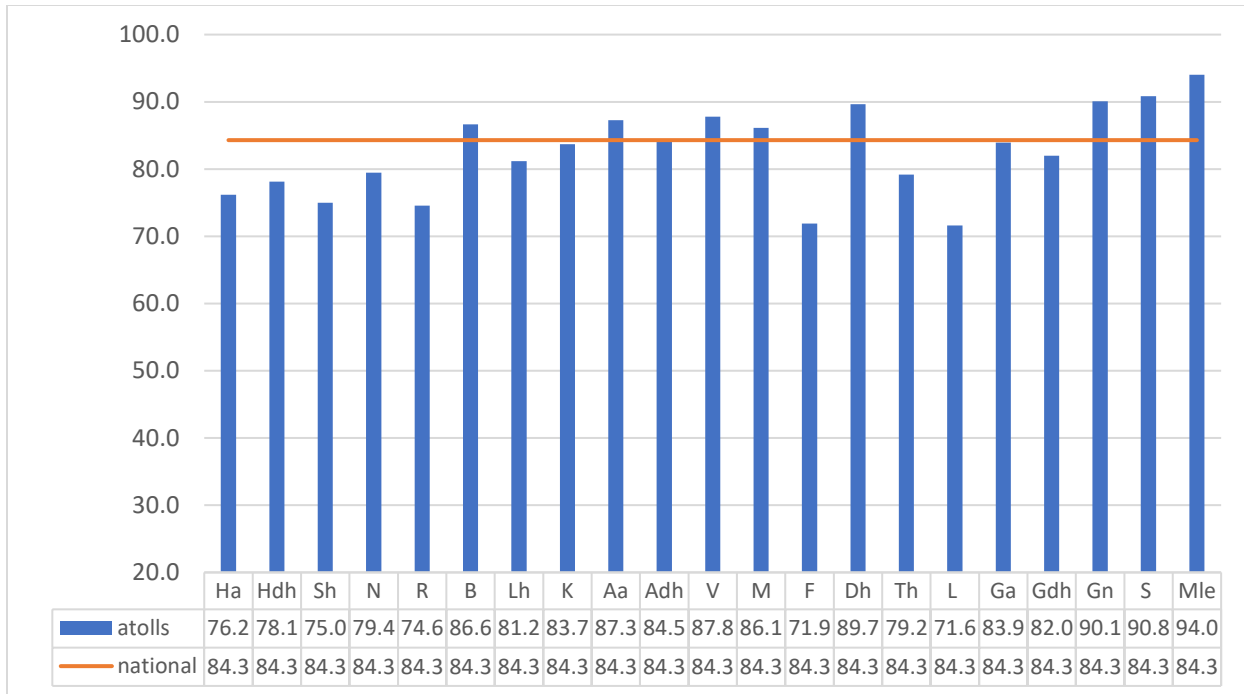


Figure 31 Atoll-wise performance in C4a, English_Gr4

As depicted in Figure 31, 9 of the atolls scored equal to or higher than the national average while the remaining 12 scored lower. Male' scored the highest ($M = 94.0$) while the lowest was scored by Laamu atoll ($M = 71.6$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 21. As evident from Table 21, Male', Gnaviyani, and Seenu atoll performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Raa, Faafu and Laamu atoll performed significantly lower.

Table 21 Comparison of performance in C4a, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.888	230	0.004	-8.110	-13.643	-2.576
Hdh	-2.876	369	0.004	-6.192	-10.425	-1.959
Sh	-3.509	267	0.001	-9.300	-14.518	-4.082
R	-3.369	227	0.001	-9.739	-15.434	-4.043
F	-2.586	88	0.011	-12.390	-21.911	-2.869
L	-3.410	147	0.001	-12.678	-20.027	-5.330
Gn	2.032	110	0.045	5.790	0.144	11.436
S	3.416	228	0.001	6.530	2.764	10.296
Mle	13.479	1073	0.000	9.741	8.323	11.159

Figure 32 shows the performance in C4b (comprehends very simple sentence or simple paragraph) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

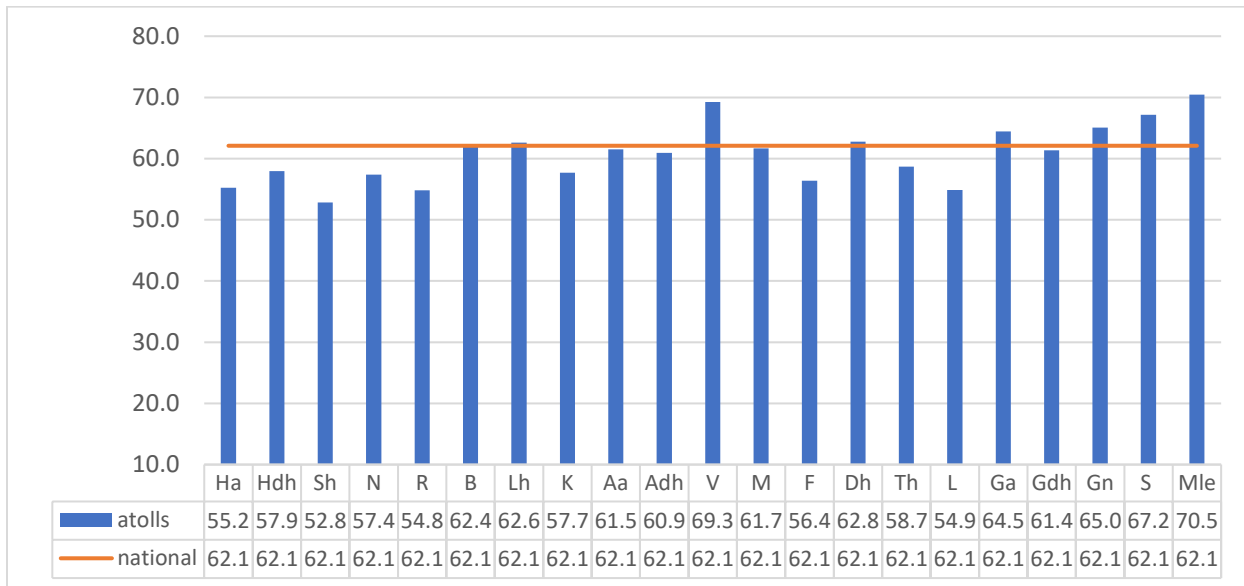


Figure 32 Atoll-wise performance in C4b, English_Gr4

As depicted in Figure 32, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. Male’ scored the highest (M = 70.5) while the lowest was scored by Shaviyani atoll (M = 52.8). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 22. As evident from Table 22, Seenu atoll and Male’ scored significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Raa, Kaafu, and Laamu atoll performed significantly lower.

Table 22 Comparison of performance in C4b, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-3.573	230	0.000	-6.862	-10.646	-3.078
Hdh	-2.703	369	0.007	-4.154	-7.176	-1.132
Sh	-5.035	267	0.000	-9.264	-12.887	-5.642
R	-3.680	227	0.000	-7.275	-11.171	-3.380
K	-2.537	232	0.012	-4.418	-7.849	-0.986
L	-2.901	147	0.004	-7.235	-12.163	-2.307
S	2.996	228	0.003	5.062	1.732	8.391
Mle	11.899	1073	0.000	8.366	6.986	9.745

Figure 33 shows the performance in C5 (parts of speech) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

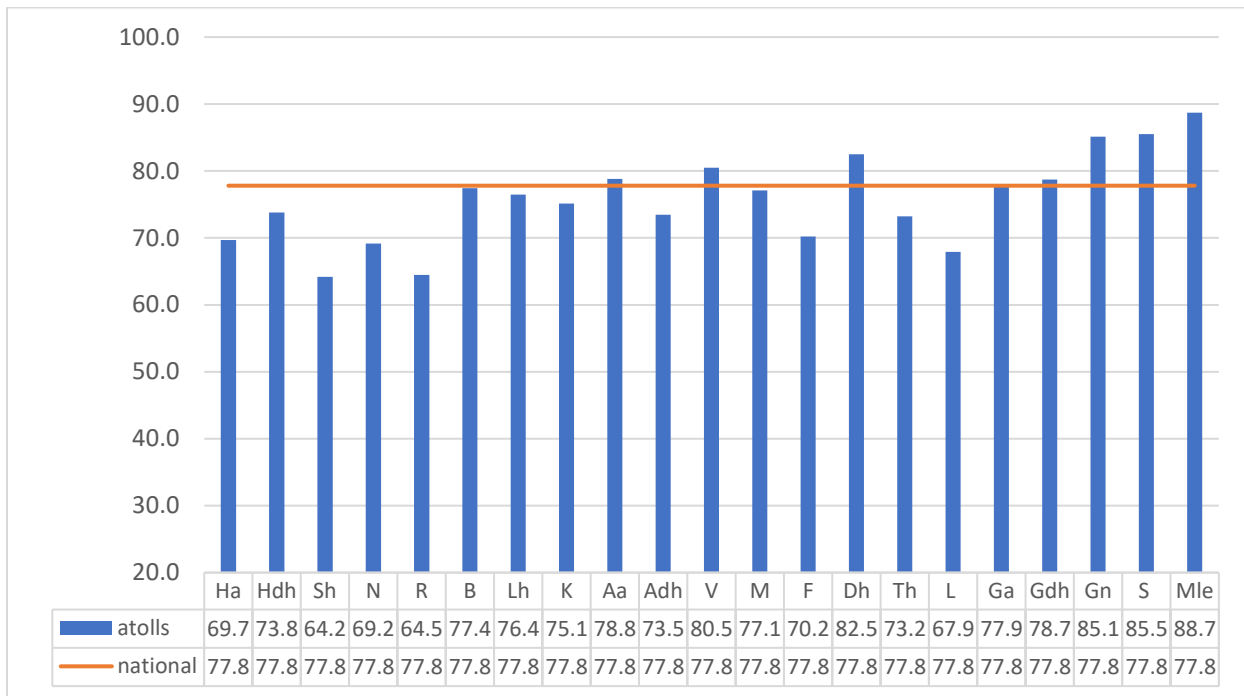


Figure 33 Atoll-wise performance in C5, English_Gr4

As depicted in Figure 33, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. Male' scored the highest (M = 88.7) while the lowest was scored by Shaviyani atoll (M = 64.2). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 23. As evident from Table 23, Male', Gnaviyani, and Seenu atoll performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Noonu, Raa, Faafu, and Laamu atoll performed significantly lower.

Table 23 Comparison of performance in C5, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-3.751	230	0.000	-8.103	-12.359	-3.847
Hdh	-2.497	369	0.013	-4.016	-7.179	-0.853
Sh	-6.654	267	0.000	-13.621	-17.651	-9.590
N	-2.766	106	0.007	-8.641	-14.836	-2.447
R	-5.515	227	0.000	-13.326	-18.088	-8.565
F	-2.096	88	0.039	-7.575	-14.759	-0.391
L	-3.552	147	0.001	-9.895	-15.399	-4.390

Gn	3.296	110	0.001	7.335	2.925	11.746
S	4.258	228	0.000	7.680	4.126	11.234
Mle	15.978	1073	0.000	10.887	9.550	12.224

Figure 34 shows the performance in C6 (comprehends intermediate level of difficulty) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 34, 5 of the atolls scored equal to or higher than the national average while the remaining 16 scored lower. Male' scored the highest (M = 70.3) while the lowest was scored by Laamu atoll (M = 46.3).

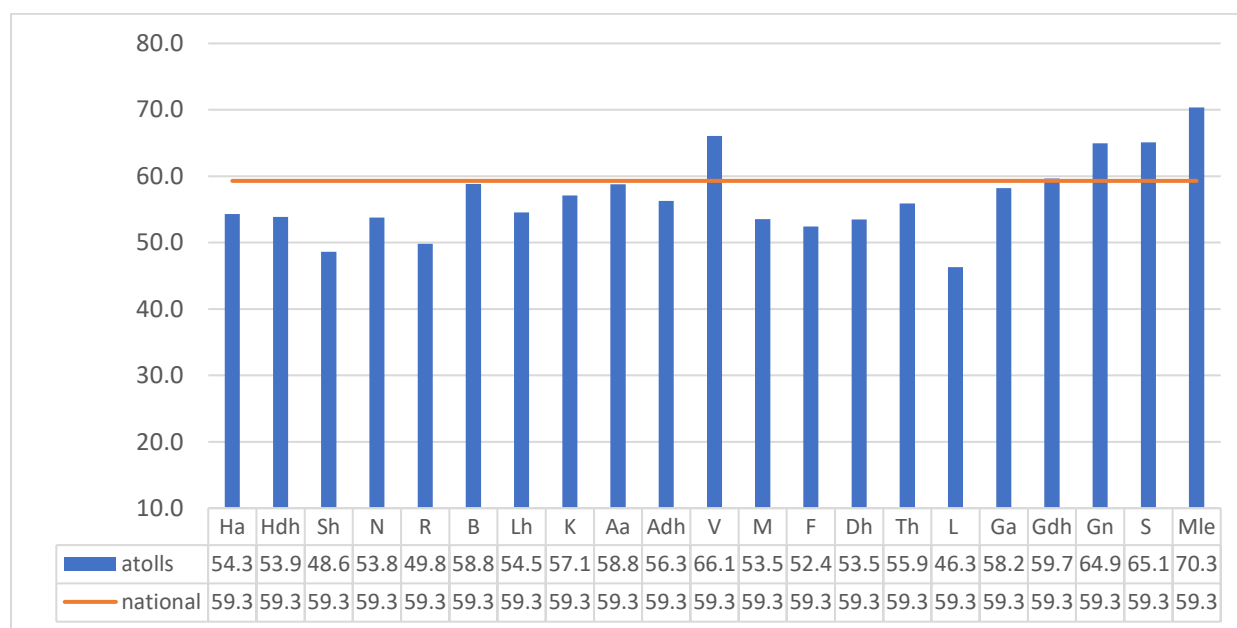


Figure 34 Atoll-wise performance in C6, English_Gr4

A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 24. As evident from Table 24, Male', Gnaviyani, and Seenu atoll performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Noonu, Raa, Faafu, Dhaalu, and Laamu atoll performed significantly lower.

Table 24 Comparison of performance in C6, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.725	230	0.007	-4.990	-8.599	-1.382
Hdh	-3.668	369	0.000	-5.442	-8.360	-2.525
Sh	-7.001	267	0.000	-10.691	-13.697	-7.684
N	-2.274	106	0.025	-5.519	-10.330	-0.707

R	-5.587	227	0.000	-9.460	-12.796	-6.123
F	-2.557	88	0.012	-6.899	-12.262	-1.536
Dh	-2.130	86	0.036	-5.799	-11.211	-0.387
L	-5.527	147	0.000	-12.985	-17.628	-8.343
Gn	2.349	110	0.021	5.648	0.884	10.412
S	3.297	228	0.001	5.806	2.336	9.276
Mle	14.854	1073	0.000	11.033	9.575	12.490

Figure 35 shows the performance in C7 (comprehends complex text of high level of difficulty) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 35, 6 of the atolls scored equal to or higher than the national average while the remaining 15 scored lower. Male' scored the highest (M = 41.8) while the lowest was scored by Raa atoll (M = 27.9).

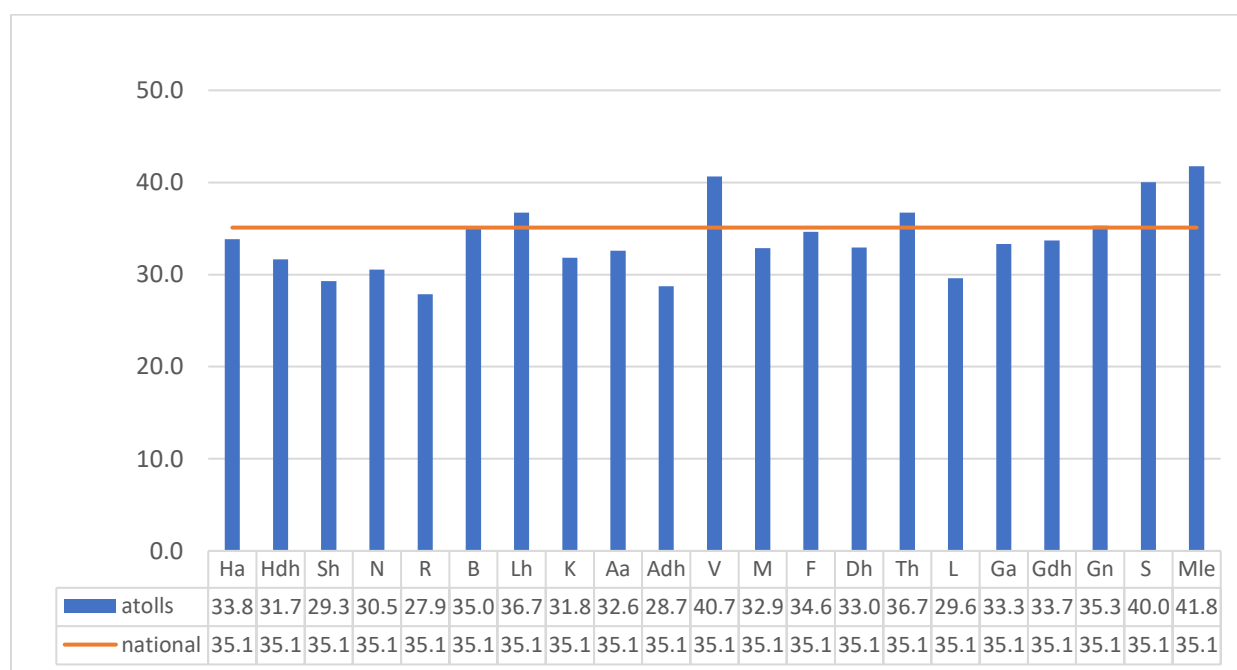


Figure 35 Atoll-wise performance in C7, English_Gr4

A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 25. As evident from Table 25, Seenu atoll and Male' performed significantly higher than the national average while Haa Dhaalu, Shaviyani, Noonu, Raa, Kaafu, Alif Dhaalu, and Laamu atoll performed significantly lower.

Table 25 Comparison of performance in C7, English_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-3.024	369	0.003	-3.433	-5.665	-1.201
Sh	-4.750	267	0.000	-5.809	-8.216	-3.401
N	-2.171	106	0.032	-4.570	-8.744	-0.396
R	-5.546	227	0.000	-7.248	-9.824	-4.673
K	-2.201	232	0.029	-3.268	-6.194	-0.343
Adh	-3.712	147	0.000	-6.383	-9.782	-2.984
L	-3.000	147	0.003	-5.482	-9.094	-1.871
S	3.392	228	0.001	4.929	2.066	7.793
Mle	9.988	1073	0.000	6.660	5.352	7.968

GRADE 4 MATHS

1. Response Distribution

A total of 4,231 students from 172 schools across the nation sat the NALO 2021 Maths assessment. Figure 36 shows the gender-wise breakdown of the candidates while Figure 37 shows the atoll-wise breakdown of the same.

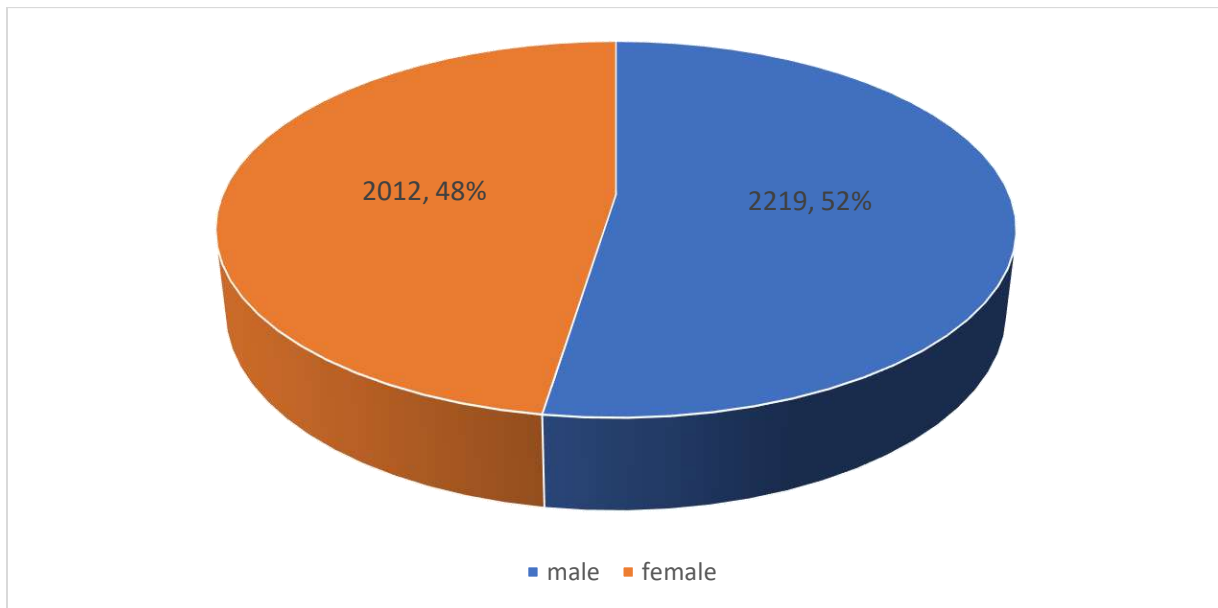


Figure 36 Gender-wise distribution of candidates (Maths_Gr4)

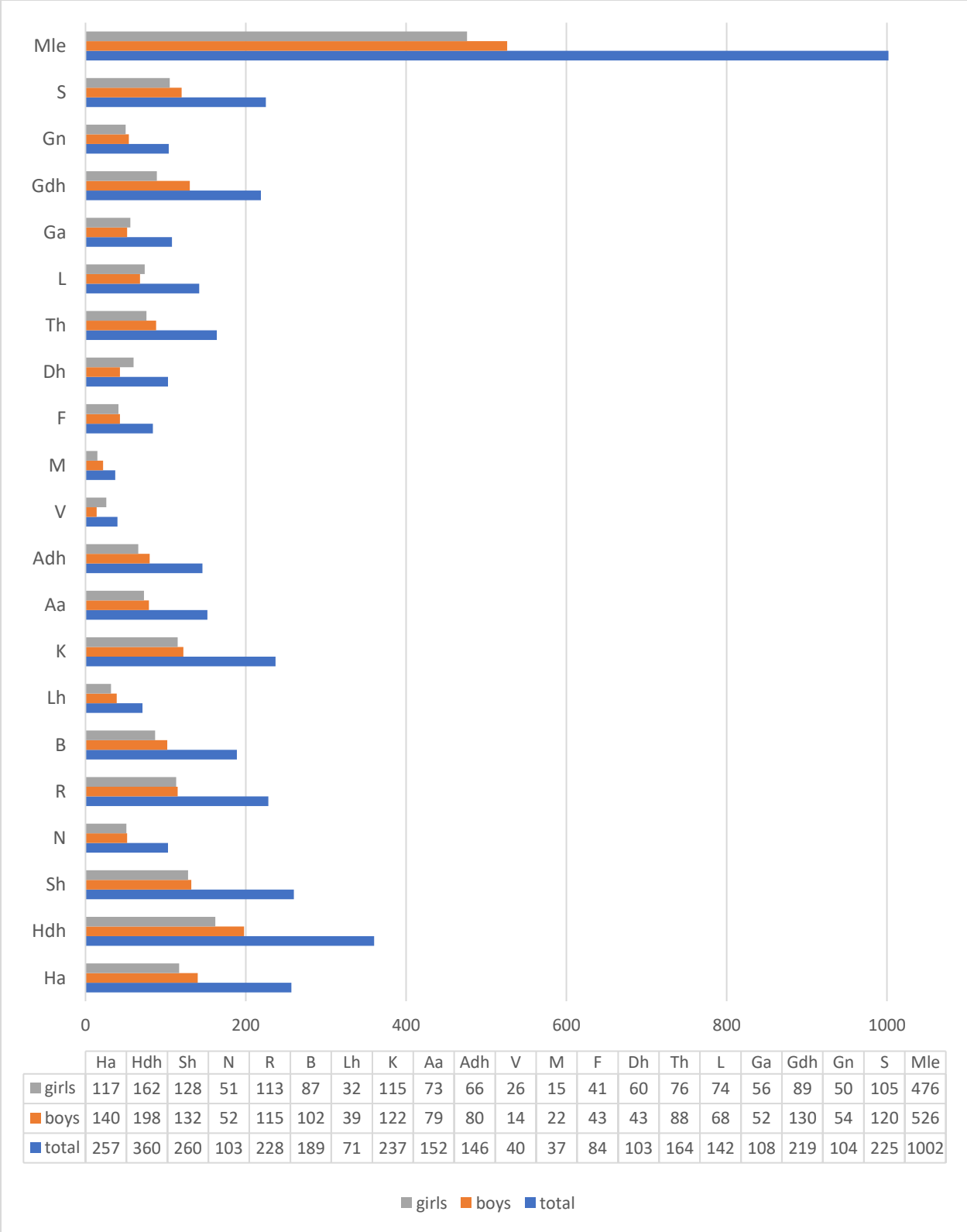


Figure 37 Atoll-wise distribution of candidates (Maths_Gr4)

Further, Table 26 shows the response patterns for the 40 items in Maths assessment of the NALO 2021. As seen from Table 26, more than 26% of students did not answer question number 10. Similarly, question numbers 13, 20 and 35 need attention, as close to 10% of students did not attempt these questions. None of the items except item 1 was answered by all the students. The next least skipped item was question 2 which was answered by 99.34% students.

Table 26 Response patterns for Maths_Gr4

Item	Correct (N, %)	Wrong (N, %)	Missing (N, %)
C1_1	2230 , 52.71	2001 , 47.29	0 , 0.00
C1_2	3056 , 72.23	1147 , 27.11	28 , 0.66
C1_3	3345 , 79.06	842 , 19.90	44 , 1.04
C2_4	2301 , 54.38	1841 , 43.51	89 , 2.10
C2_5	2149 , 50.79	1876 , 44.34	206 , 4.87
C2_6	730 , 17.25	3442 , 81.35	59 , 1.39
C5_7	2620 , 61.92	1567 , 37.04	44 , 1.04
C1_8	1942 , 45.90	2249 , 53.16	40 , 0.95
C1_9	1177 , 27.82	3006 , 71.05	48 , 1.13
C2_10	1624 , 38.38	1479 , 34.96	1128 , 26.66
C2_11	2269 , 53.63	1896 , 44.81	66 , 1.56
C2_12	2085 , 49.28	2080 , 49.16	66 , 1.56
C2_13	2647 , 62.56	1189 , 28.10	395 , 9.34
C2_14	2073 , 49.00	2081 , 49.18	77 , 1.82
C5_15	1778 , 42.02	2384 , 56.35	69 , 1.63
C4_16	2060 , 48.69	1839 , 43.46	332 , 7.85
C4_17	3833 , 90.59	248 , 5.86	150 , 3.55
C3_18	1875 , 44.32	2080 , 49.16	276 , 6.52
C5_19	1465 , 34.63	2688 , 63.53	78 , 1.84
C6_20	1995 , 47.15	1887 , 44.60	349 , 8.25
C9_21	1379 , 32.59	2774 , 65.56	78 , 1.84
C8_22	2652 , 62.68	1504 , 35.55	75 , 1.77
C8_23	1117 , 26.40	3003 , 70.98	111 , 2.62
C8_24	3006 , 71.05	1172 , 27.70	53 , 1.25
C10_25	2266 , 53.56	1905 , 45.02	60 , 1.42
C9_26	1434 , 33.89	2626 , 62.07	171 , 4.04
C10_27	1655 , 39.12	2469 , 58.35	107 , 2.53
C12_28	1529 , 36.14	2612 , 61.73	90 , 2.13
C12_29	2477 , 58.54	1646 , 38.90	108 , 2.55
C13_30	924 , 21.84	3232 , 76.39	75 , 1.77
C11_31	961 , 22.71	2986 , 70.57	284 , 6.71
C11_32	885 , 20.92	3250 , 76.81	96 , 2.27
C12_33	2352 , 55.59	1611 , 38.08	268 , 6.33

C12_34	1641 , 38.79	2511 , 59.35	79 , 1.87
C13_35	1033 , 24.42	2846 , 67.27	352 , 8.32
C12_36	1829 , 43.23	2242 , 52.99	160 , 3.78
C11_37	1169 , 27.63	2977 , 70.36	85 , 2.01
C11_38	2794 , 66.04	1320 , 31.20	117 , 2.77
C11_39	708 , 16.73	3395 , 80.24	128 , 3.03
C12_40	1233 , 29.14	2880 , 68.07	118 , 2.79

2. Patterns in student performance

In computing student performance, correct responses were assigned one mark while both wrong and non-responses were assigned zero marks because otherwise, the sample size would significantly decrease, thus affecting the overall findings adversely. Furthermore, the proceeding analysis is based only on the first 20 items as these were considered the NALO items while the rest were considered as international items. Accordingly, Figure 38 shows the national performance of students in Maths_Gr4 in the NALO 2021.

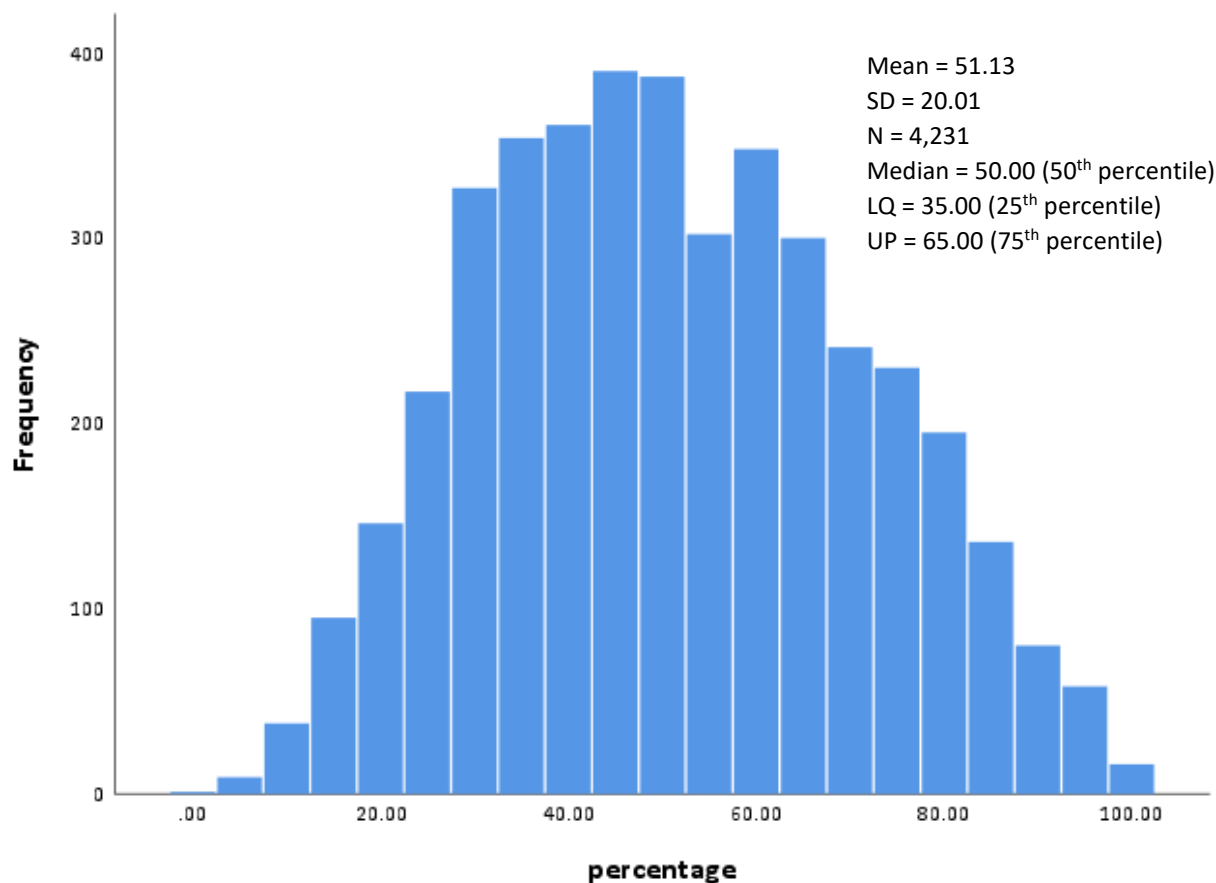


Figure 38 Distribution of student national performance in Maths_Gr4

As inferred from Figure 38, the average performance of students in Maths_Gr4 in the NALO 2021 is 51.13 as indicated by the mean score. Moreover, 22.6% of students achieved higher than 75th percentile marks (65.00) while 45.0% of students achieved higher than 50th percentile marks (50.00). These results indicate that student performance in Mathematics_Gr4 is a fairly even distribution.

Figure 39 shows the atoll-wise average performance of students in Maths_Gr4 in the NALO 2021. The national average (51.1) is shown by the line graph while the averages for the atolls and Male’ are indicated by the bars. As seen from Figure 39, eight of the cases are equal to or above the national average. Among those that scored above the national average, Vaavu atoll scored the highest (M = 57.5). On the other hand, Haa Alif atoll was far below the national average with a mean score of 42.8.

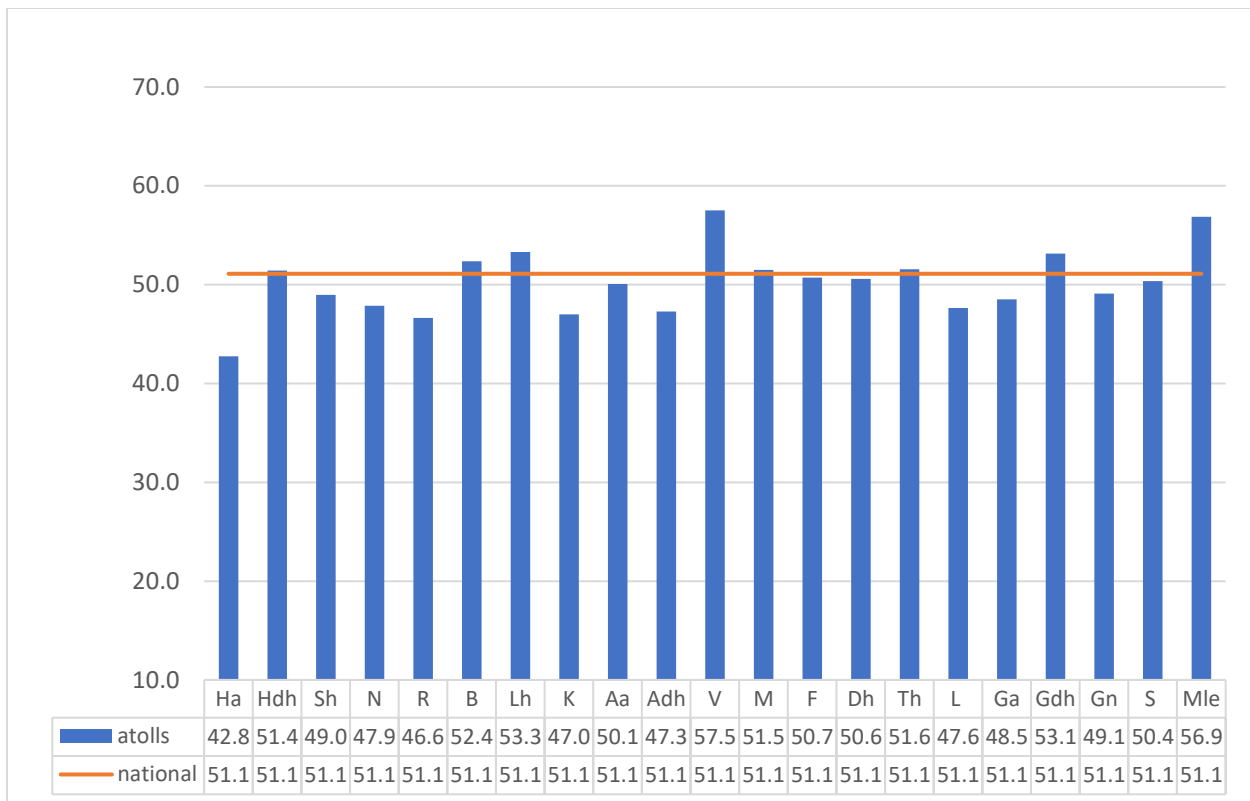


Figure 39 Atoll-wise performance in Maths_Gr4

In addition to the descriptive analysis, further investigations were conducted to test if there is a statistically significant difference between the national average and that of the atolls, using one sample t-test. Table 27 shows the results of the t-tests for all the 20 atolls and Male’. According to the results in Table 27, the difference in student performance is statistically significant for several atolls as indicated in bold. Male’ and Vaavu atoll scored a significantly higher mean score while Haa Alif, Raa, Kaafu, Alif Dhaalu, and Laamu atoll scored significantly lower mean scores.

Table 27 Comparison of atoll and national performance (Maths_Gr4)

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-6.532	256	0.000	-8.337	-10.851	-5.824
Hdh	0.311	359	0.756	0.331	-1.761	2.422
Sh	-1.809	259	0.072	-2.138	-4.466	0.189
N	-1.821	102	0.072	-3.236	-6.761	0.289
R	-4.008	227	0.000	-4.455	-6.646	-2.265
B	0.936	188	0.350	1.281	-1.418	3.980
Lh	0.950	70	0.345	2.210	-2.430	6.850
K	-3.273	236	0.001	-4.117	-6.595	-1.639
Aa	-0.656	151	0.513	-1.034	-4.149	2.081
Adh	-2.393	145	0.018	-3.805	-6.949	-0.662
V	2.054	39	0.047	6.400	0.097	12.703
M	0.122	36	0.904	0.386	-6.057	6.829
F	-0.175	83	0.862	-0.386	-4.775	4.004
Dh	-0.317	102	0.752	-0.517	-3.754	2.719
Th	0.283	163	0.778	0.455	-2.719	3.629
L	-2.241	141	0.027	-3.459	-6.510	-0.408
Ga	-1.619	107	0.108	-2.581	-5.741	0.578
Gdh	1.357	218	0.176	2.028	-0.918	4.973
Gn	-0.984	103	0.327	-2.013	-6.071	2.044
S	-0.585	224	0.559	-0.744	-3.252	1.763
Mle	8.944	1001	0.000	5.761	4.497	7.025

Figure 40 shows the atoll-wise as well as national performance of students based on gender in Maths_Gr4. As seen in Figure 40, boys performed slightly better at national level based on percentage mean scores whereby the mean for boys and girls are 51.5 and 50.7 respectively. At the atoll level, boys performed better in 14 cases while girls did better in 7. Most of these differences are not large as depicted by the bars. The largest difference is observed in Haa Alif atoll where boys performed better (M = 48.4) than girls (M = 36.0). On the hand, the smallest difference is observed in Kaafu atoll where boys performed better (M = 47.0) than girls (M = 46.9).

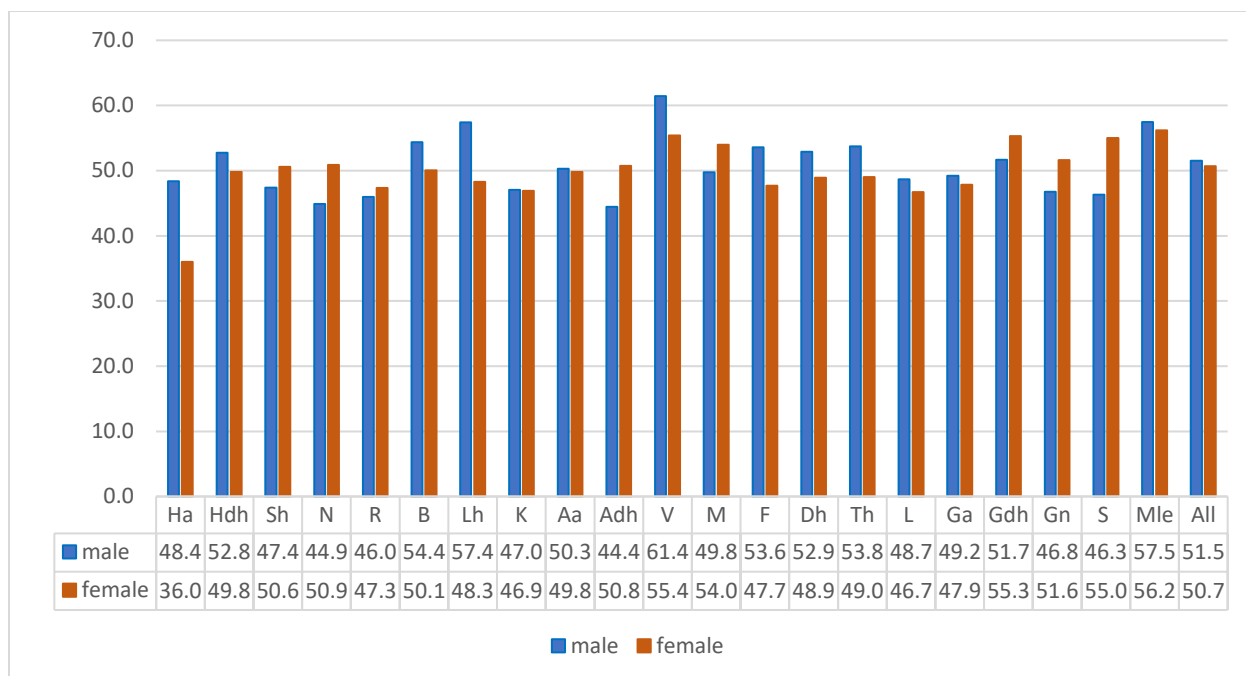


Figure 40 Gender-based, atoll-wise performances in Maths_Gr4

Further to the descriptive analyses, independent sample t-test was used to test if there is a statistically significant difference between boys and girls at the national as well as atoll levels. According to the results in Table 28, boys performed significantly better in Haa Alif and Lhaviyani while girls performed significantly better in Alif Dhaal and Seenu atoll. There is no statistically significant difference between the genders at the national level.

Table 28 Gender-wise comparison of performance at atoll and national level (Maths_Gr4)

Atoll	F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI Lower	95% CI Upper
Ha	0.147	0.701	5.051	255	0.000	12.367	2.449	7.545	17.189
Hdh*	5.887	0.016	1.391	355	0.165	2.938	2.112	-1.217	7.092
Sh	2.124	0.146	-1.356	258	0.176	-3.200	2.360	-7.847	1.448
N	0.059	0.808	-1.697	101	0.093	-5.979	3.522	-12.965	1.008
R	0.269	0.604	-0.624	226	0.533	-1.389	2.226	-5.776	2.999
B	0.028	0.868	1.574	187	0.117	4.305	2.735	-1.089	9.700
Lh	0.552	0.460	2.000	69	0.049	9.155	4.578	0.021	18.288
K	1.397	0.238	0.054	235	0.957	0.136	2.522	-4.832	5.104
Aa	0.023	0.879	0.165	150	0.869	0.522	3.166	-5.733	6.777
Adh	0.093	0.761	-1.998	144	0.048	-6.320	3.163	-12.573	-0.067
V	0.363	0.550	0.923	38	0.362	6.044	6.546	-7.208	19.296
M	0.722	0.401	-0.648	35	0.521	-4.227	6.523	-17.470	9.016
F	3.710	0.058	1.348	82	0.181	5.922	4.394	-2.818	14.662
Dh	0.084	0.773	1.209	101	0.230	3.990	3.301	-2.558	10.538

Th	0.321	0.572	1.475	162	0.142	4.737	3.212	-1.606	11.080
L	3.885	0.051	0.642	140	0.522	1.987	3.096	-4.133	8.108
Ga	3.050	0.084	0.429	106	0.669	1.374	3.202	-4.976	7.723
Gdh	0.794	0.374	-1.193	217	0.234	-3.627	3.040	-9.618	2.364
Gn	0.084	0.772	-1.184	102	0.239	-4.841	4.087	-12.947	3.266
S	0.298	0.586	-3.498	223	0.001	-8.708	2.489	-13.614	-3.803
Mle	0.171	0.679	0.980	1000	0.327	1.264	1.290	-1.267	3.796
All	0.645	0.422	1.317	4229	0.188	0.811	0.616	-0.396	2.019

* results for unequal variances reported

3. Skill-wise performance

The 20 items in the Maths_Gr4 NALO 2021 tested a total of six major Maths skills (competencies). These are (i) number sense, C1, (ii) arithmetic operations, C2, (iii) fractions, C3, (iv) basic shapes, C4, (v) measurements, data interpretation, analysis and graphs, C5, (vi) application in daily life, C6. Figure 41 shows the performance in these competencies at the national level. According to Figure 41, students performed the best in basic shapes (M = 69.64) while they demonstrated the poorest performance in fractions (M = 44.32).

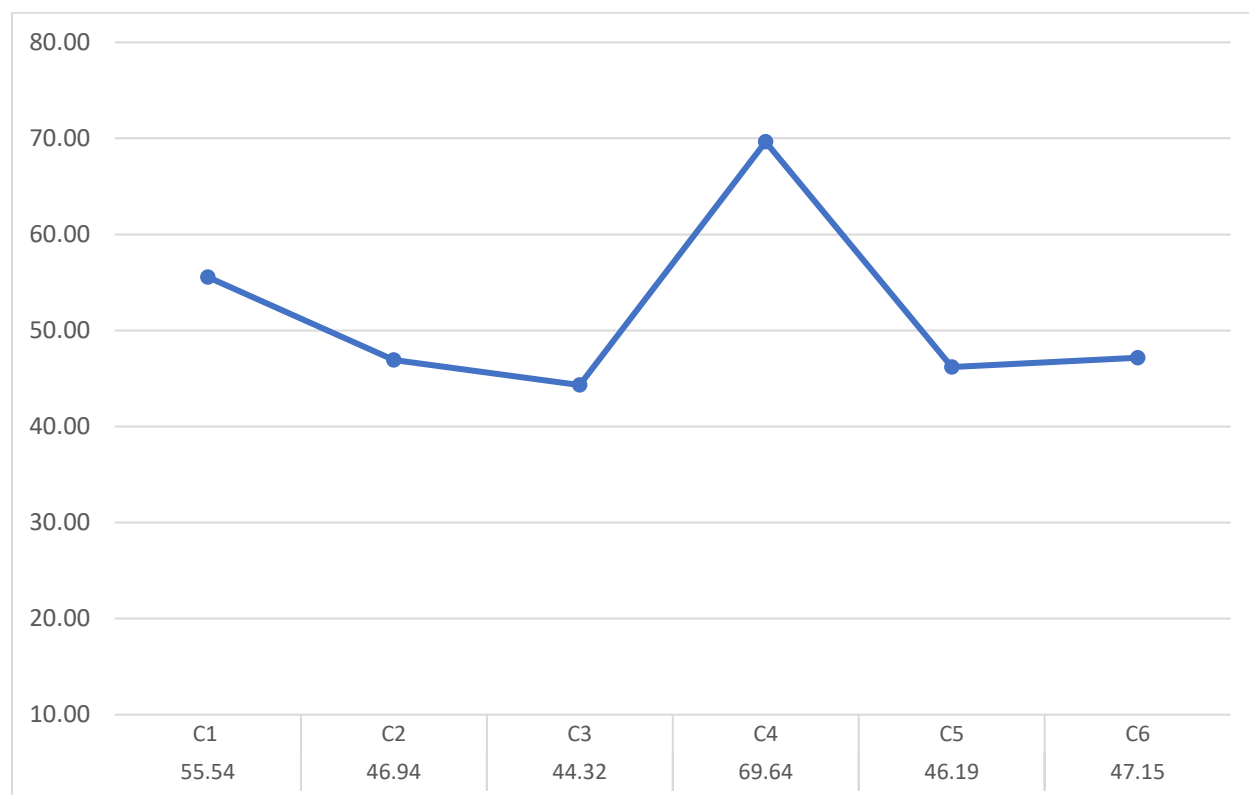


Figure 41 Skill-wise performance in Maths_Gr4

Figure 42 shows the performance in C1 (number sense) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

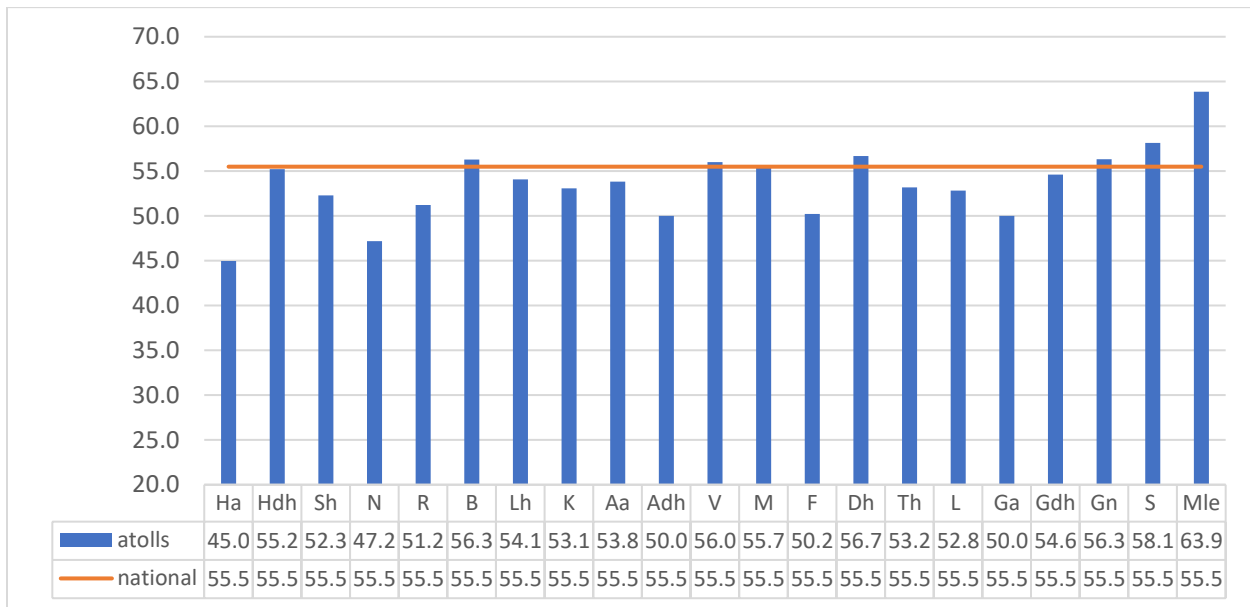


Figure 42 Atoll-wise performance in C1, Maths_Gr4

As depicted in Figure 42, 7 of the atolls scored equal to or higher than the national average while the remaining 14 scored lower. Male' scored the highest (M = 63.9) while the lowest scoring atoll is Haa Alif atoll (M = 45.0). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 29. As evident from Table 29, Haa Alif, Shaviyani, Noonu, Raa, Alif Dhaalu, and Gaafu Alif atoll performed significantly lower than the national average while Male' performed significantly higher.

Table 29 Comparison of performance in C1, Maths_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-6.994	256	0.000	-10.519	-13.481	-7.558
Sh	-2.052	259	0.041	-3.192	-6.256	-0.129
N	-3.372	102	0.001	-8.316	-13.207	-3.424
R	-2.903	227	0.004	-4.272	-7.171	-1.373
Adh	-2.624	145	0.010	-5.500	-9.643	-1.357
Ga	-2.438	107	0.016	-5.500	-9.972	-1.028
Mle	10.696	1001	0.000	8.372	6.836	9.908

Figure 43 shows the performance in C2 (arithmetic operations) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

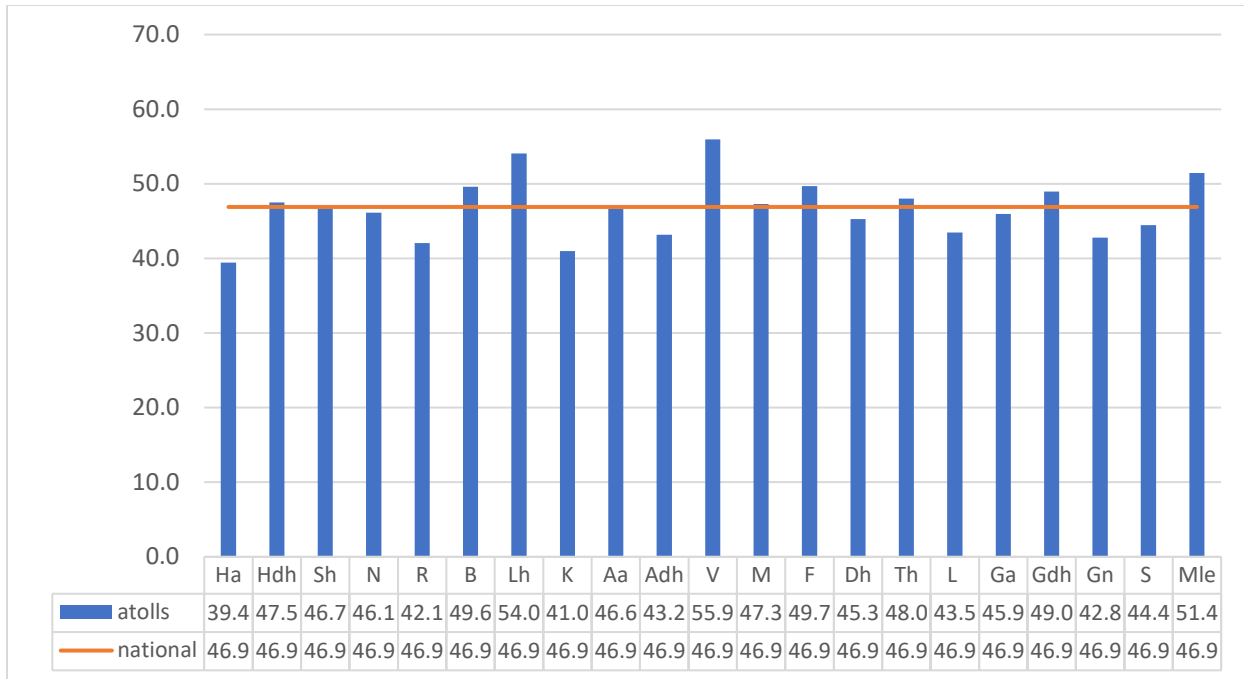


Figure 43 Atoll-wise performance in C2, Maths_Gr4

As depicted in Figure 43, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. The highest scoring atoll is Vaavu atoll (M = 55.9) while the lowest scoring atoll is Haa Alif atoll (M = 39.4). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 30. As evident from Table 30, Lhaviyani, Vaavu atoll and Male’ performed significantly higher than the national average while Haa Alif, Raa, and Kaafu atoll performed significantly lower.

Table 30 Comparison of performance in C2, Maths_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-4.852	256	0.000	-7.454	-10.480	-4.429
R	-3.213	227	0.002	-4.850	-7.824	-1.875
Lh	2.395	70	0.019	7.149	1.195	13.104
K	-3.553	236	0.000	-5.919	-9.201	-2.637
V	2.117	39	0.041	9.038	0.402	17.673
Mle	5.458	1001	0.000	4.547	2.912	6.182

Figure 44 shows the performance in C3 (fractions) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

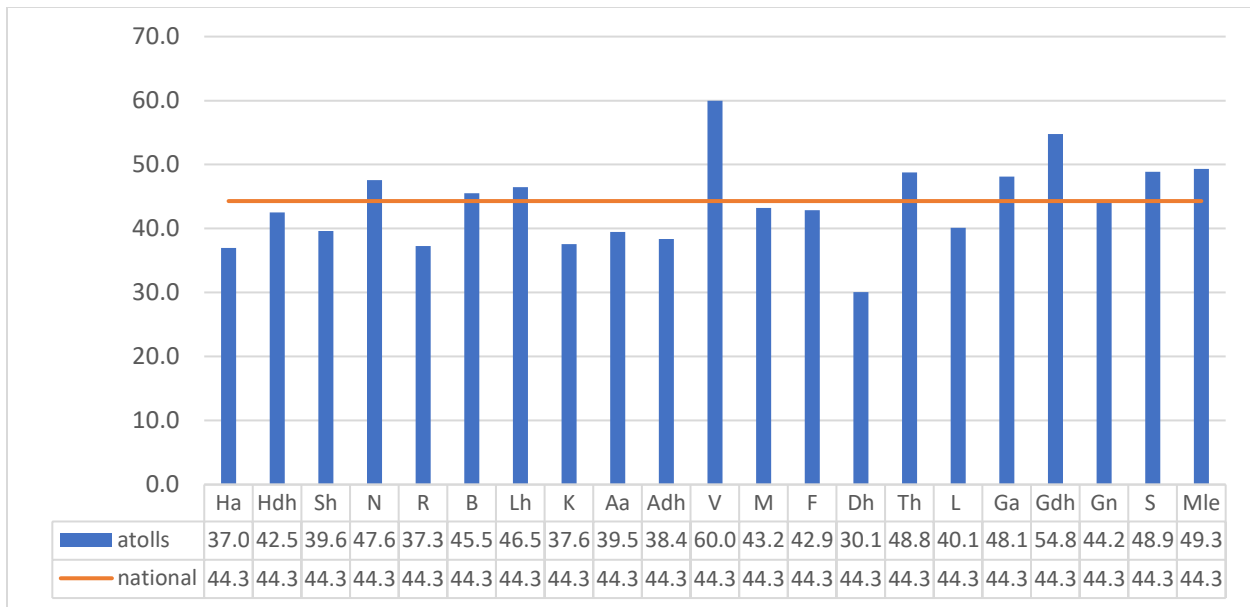


Figure 44 Atoll-wise performance in C3, Maths_Gr4

As depicted in Figure 44, 9 of the atolls scored equal to or higher than the national average while the remaining 12 scored lower. The highest scoring atoll is Vaavu atoll (M = 60.0) while the lowest scoring atoll is Dhaalu atoll (M = 30.1). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 31. As evident from Table 31, Gaafu Dhaalu atoll and Male’ performed significantly higher than the national average while Haa Alif, Raa, Kaafu, and Dhaalu atoll performed significantly lower.

Table 31 Comparison of performance in C3, Maths_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.431	256	0.016	-7.335	-13.276	-1.394
R	-2.187	227	0.030	-7.019	-13.343	-0.695
K	-2.140	236	0.033	-6.747	-12.957	-0.537
Dh	-3.127	102	0.002	-14.203	-23.211	-5.195
Gdh	3.113	218	0.002	10.495	3.851	17.138
Mle	3.165	1001	0.002	5.001	1.901	8.102

Figure 45 shows the performance in C4 (basic shapes) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

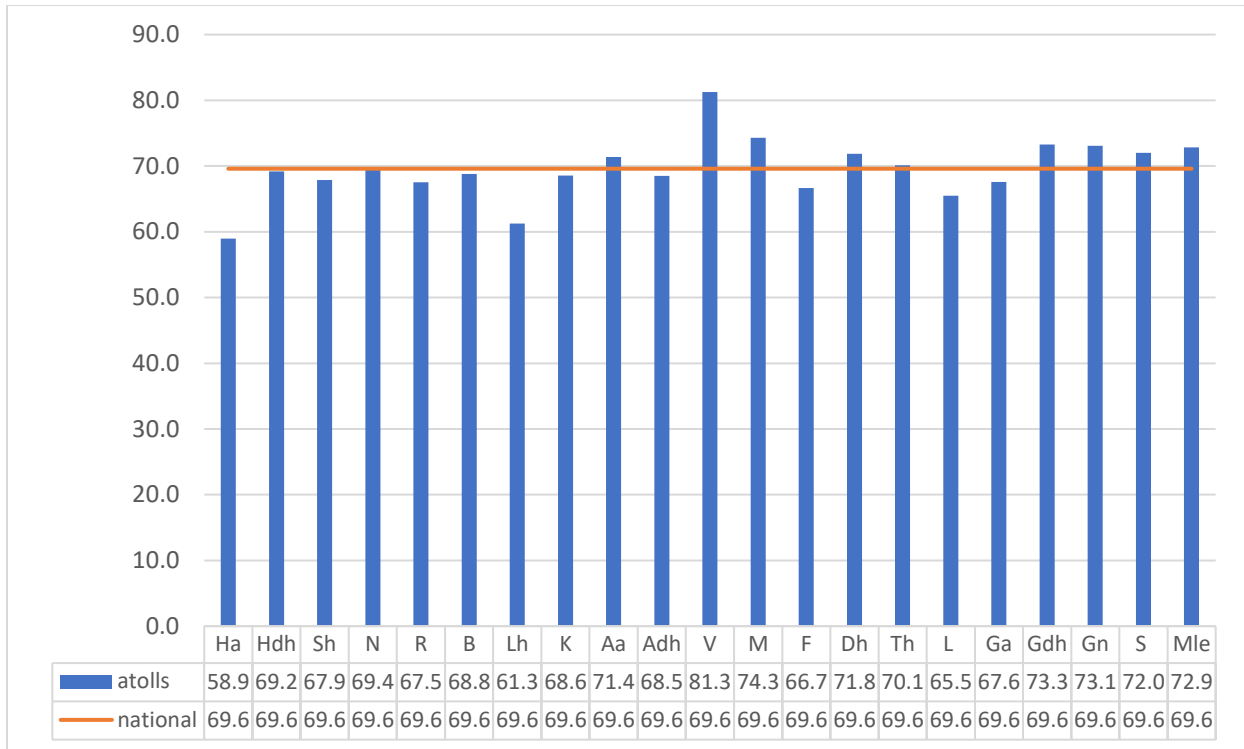


Figure 45 Atoll-wise performance in C4, Maths_Gr4

As depicted in Figure 45, 9 of the atolls scored equal to or higher than the national average while the remaining 12 scored lower. Vaavu atoll scored the highest (M = 81.3) while the lowest scoring atoll is Haa Alif atoll (M = 58.9). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 32. As evident from Table 32, Vaavu atoll and Male’ performed significantly higher than the national average while Haa Alif and Lhaviyani atoll performed significantly lower.

Table 32 Comparison of performance in C4, Maths_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-4.655	256	0.000	-10.651	-15.156	-6.145
Lh	-2.287	70	0.025	-8.332	-15.600	-1.065
V	2.516	39	0.016	11.650	2.286	21.014
Mle	3.686	1001	0.000	3.254	1.522	4.987

Figure 46 shows the performance in C5 (measurements, data interpretations, analysis and graphs) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

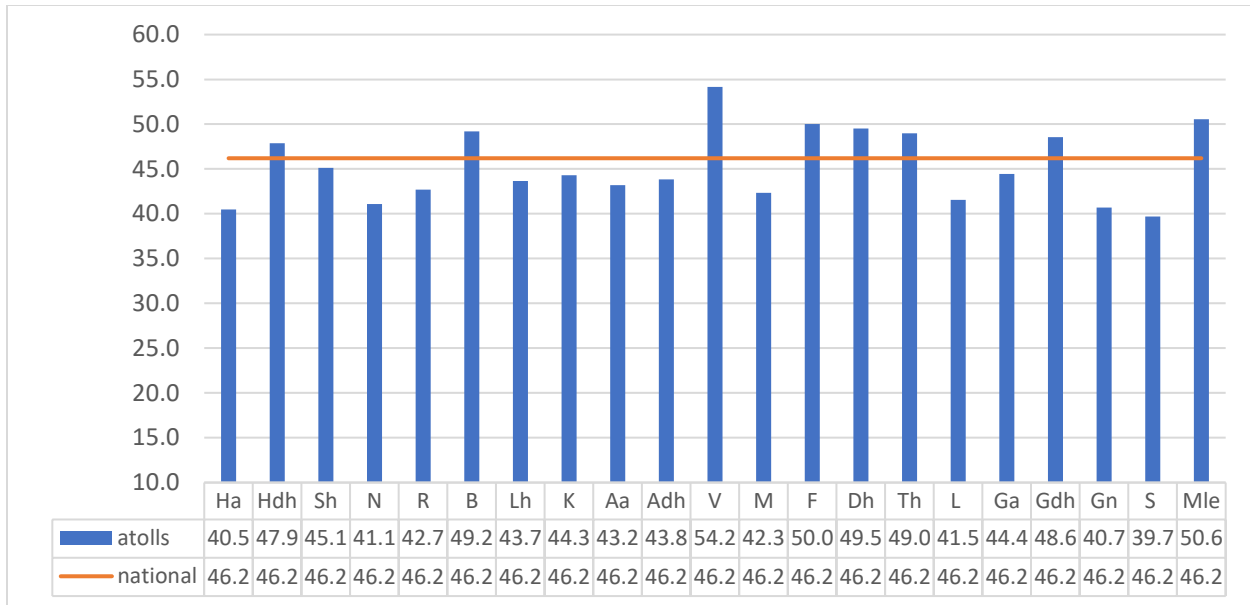


Figure 46 Atoll-wise performance in C5, Maths_Gr4

As depicted in Figure 46, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. Vaavu atoll scored the highest ($M = 54.2$) while the lowest scoring atoll is Seenu atoll ($M = 39.7$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 33. As evident from Table 33, Male' performed significantly higher than the national average while Haa Alif and Seenu atoll performed significantly lower.

Table 33 Comparison of performance in C5, Maths_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.795	256	0.006	-5.733	-9.774	-1.693
S	-3.088	224	0.002	-6.497	-10.643	-2.351
Mle	4.310	1001	0.000	4.365	2.378	6.353

Figure 47 shows the performance in C6 (applications in daily life) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

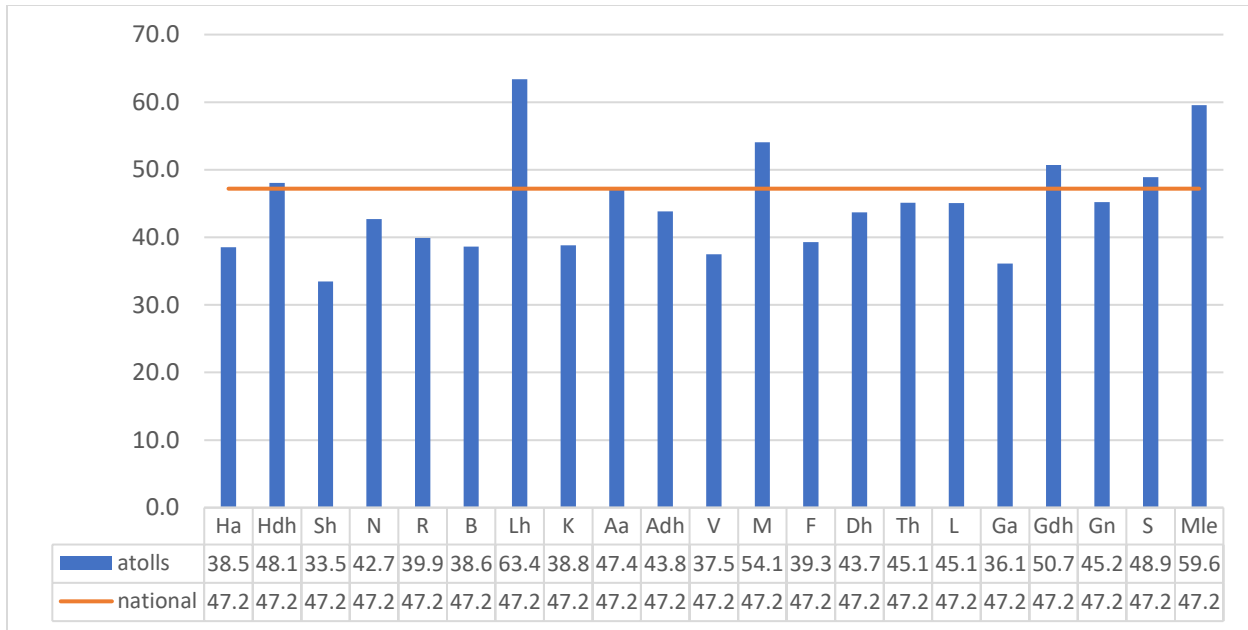


Figure 47 Atoll-wise performance in C6, Maths_Gr4

As depicted in Figure 47, 7 of the atolls scored equal to or higher than the national average while the remaining 14 scored lower. The highest scoring atoll is Lhaviyani atoll (M = 63.4) while the lowest scoring atoll is Shaviyani atoll (M = 33.5). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 34. As evident from Table 34, Male' performed significantly higher than the national average while Haa Alif, Shaviyani, Raa, Baa, Lhaviyani, Kaafu, and Gaafu Alif atoll performed significantly lower.

Table 34 Comparison of performance in C6, Maths_Gr4

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.853	256	0.005	-8.679	-14.668	-2.689
Sh	-4.686	259	0.000	-13.738	-19.512	-7.965
R	-2.242	227	0.026	-7.288	-13.692	-0.883
B	-2.415	188	0.017	-8.576	-15.581	-1.571
Lh	2.810	70	0.006	16.180	4.696	27.665
K	-2.642	236	0.009	-8.381	-14.631	-2.132
Ga	-2.388	107	0.019	-11.089	-20.294	-1.884
Mle	7.982	1001	0.000	12.381	9.337	15.425

CHAPTER 5

NALO 2021 FINDINGS - GRADE SEVEN

GRADE 7 DHIVEHI

1. Response Distribution

A total of 4,389 students from 191 schools across the nation sat the NALO 2021 Dhivehi Gr 7 assessment. However, fifteen of the cases had their gender not entered into the original data sheet. These were treated as missing data in respective analyses. Figure 48 shows the gender-wise breakdown of the candidates while Figure 49 shows the atoll-wise breakdown of the same.

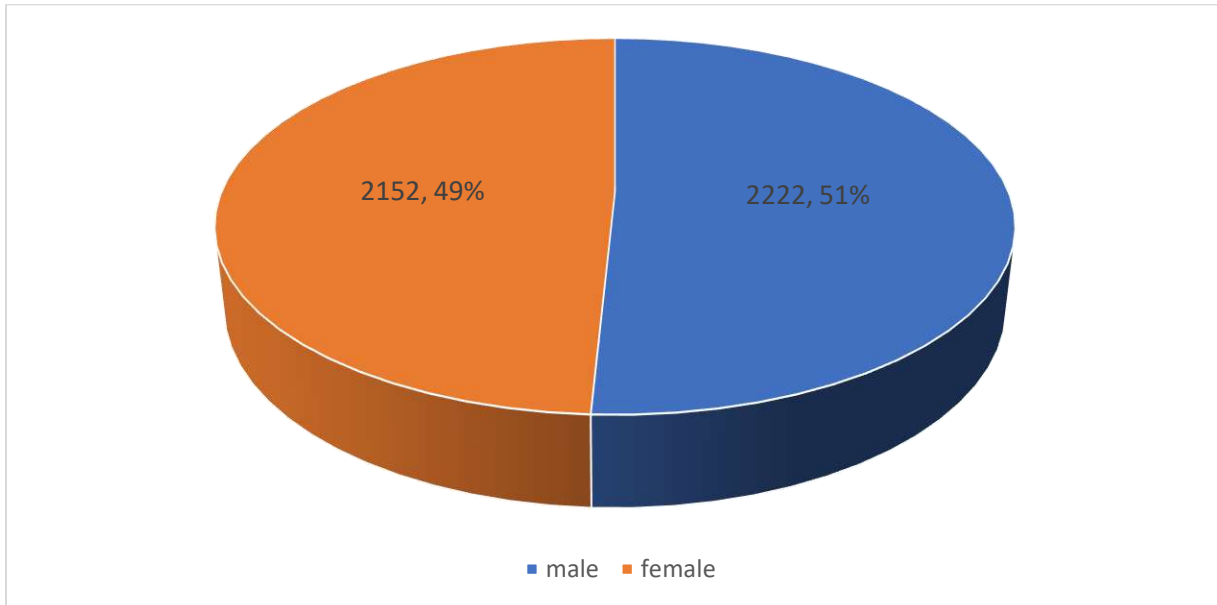


Figure 48 Gender-wise distribution of candidates (Dhivehi_Gr7)

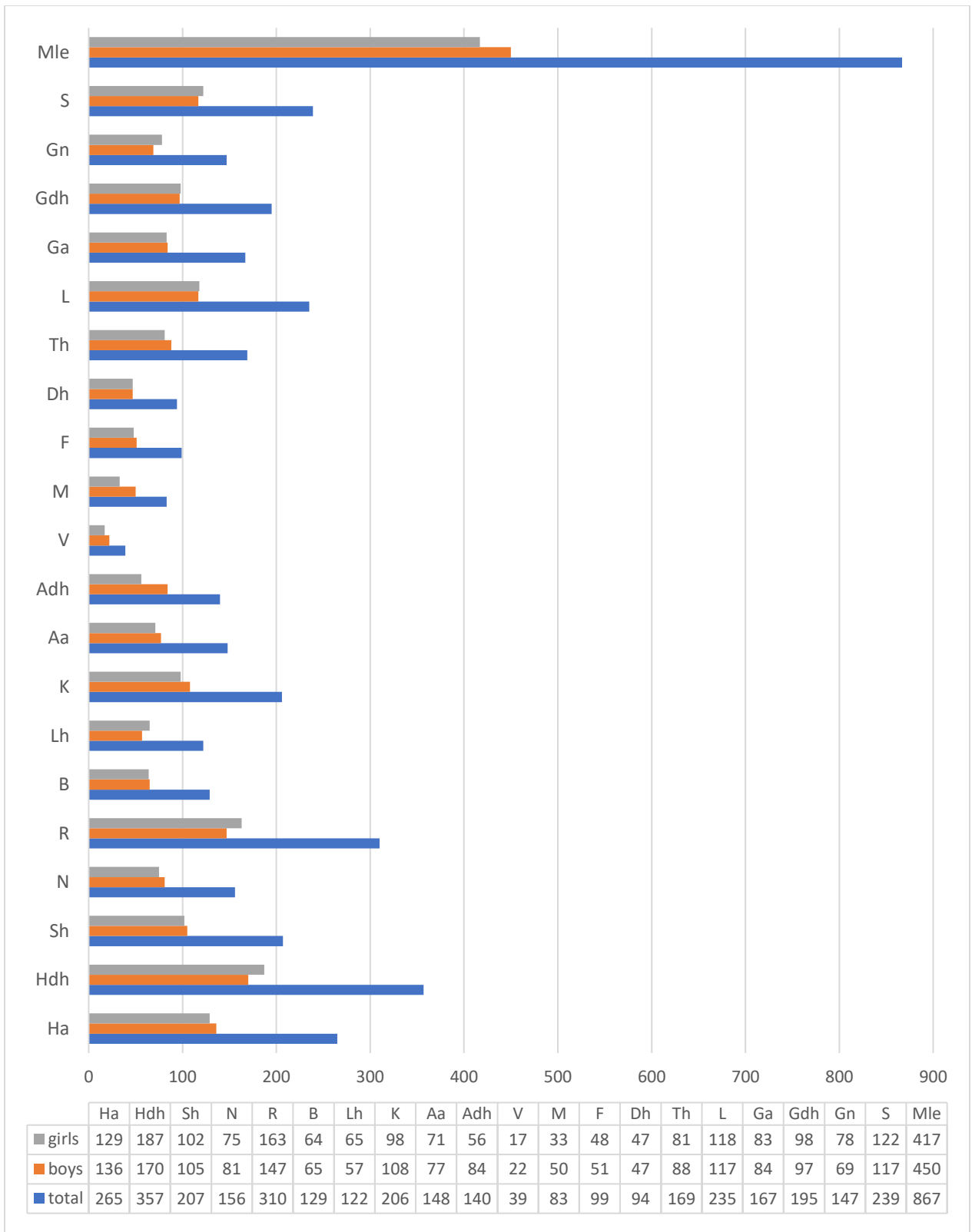


Figure 49 Atoll-wise distribution of candidates (Dhivehi_Gr7)

Further, Table 44 shows the response patterns for the 42 items in Dhivehi Gr 7 assessment of the NALO 2021. As seen from Table 44, the vast majority of the questions were answered by all the students. Questions 42 and 45 were the most left out question by students; the missing percentage for each of these questions is 2.80 (123 students). Similarly, questions 43 and 44 were missed out by 2.78 (122 students). These four items were asked to test the level of understanding of information provide in a job announcement.

Table 35 Response patterns for Dhivehi_Gr 7

Item	Correct (N , %)	Wrong (N , %)	Missing (N , %)
C2_1	3528 , 80.38	861 , 19.62	0 , 0.00
C2_2	3120 , 71.09	1269 , 28.91	0 , 0.00
C5_3	2948 , 67.17	1441 , 32.83	0 , 0.00
C5_4	2063 , 47.00	2326 , 53.00	0 , 0.00
C2_5	2853 , 65.00	1536 , 35.00	0 , 0.00
C2_6	2253 , 51.33	2136 , 48.67	0 , 0.00
C5_7	3333 , 75.94	1056 , 24.06	0 , 0.00
C5_8	3915 , 89.20	474 , 10.80	0 , 0.00
C5_9	3308 , 75.37	1081 , 24.63	0 , 0.00
C5_10	1619 , 36.89	2770 , 63.11	0 , 0.00
C5_11	3231 , 73.62	1158 , 26.38	0 , 0.00
C11_12	1751 , 39.90	2638 , 60.10	0 , 0.00
C11_13	2735 , 62.31	1654 , 37.69	0 , 0.00
C5_14	3787 , 86.28	602 , 13.72	0 , 0.00
C5_15	1354 , 30.85	3035 , 69.15	0 , 0.00
C5_16	3307 , 75.35	1082 , 24.65	0 , 0.00
C5_17	3665 , 83.50	724 , 16.50	0 , 0.00
C5_18	3638 , 82.89	751 , 17.11	0 , 0.00
C5_19	3541 , 80.68	848 , 19.32	0 , 0.00
C5_20	1602 , 36.50	2787 , 63.50	0 , 0.00
C9_21	1633 , 37.21	2756 , 62.79	0 , 0.00
C9_22	1006 , 22.92	3383 , 77.08	0 , 0.00
C9_23	2605 , 59.35	1784 , 40.65	0 , 0.00
C9_24	3437 , 78.31	951 , 21.67	1 , 0.02
C12_25	1119 , 25.50	3269 , 74.48	1 , 0.02
C12_26	2310 , 52.63	2078 , 47.35	1 , 0.02
C12_27	1811 , 41.26	2577 , 58.71	1 , 0.02
C12_28	3224 , 73.46	1164 , 26.52	1 , 0.02
C7a_29	1653 , 37.66	2736 , 62.34	0 , 0.00
C8_31	2337 , 53.25	2052 , 46.75	0 , 0.00
C8_32	1913 , 43.59	2476 , 56.41	0 , 0.00
C8_33	1270 , 28.94	3119 , 71.06	0 , 0.00

C7a_34	2528 , 57.60	1861 , 42.40	0 , 0.00
C7a_35	2375 , 54.11	2014 , 45.89	0 , 0.00
C7a_36	1840 , 41.92	2549 , 58.08	0 , 0.00
C7a_37	3077 , 70.11	1312 , 29.89	0 , 0.00
C7a_38	3972 , 90.50	417 , 9.50	0 , 0.00
C7a_39	3146 , 71.68	1243 , 28.32	0 , 0.00
C6_42	3200 , 72.91	1066 , 24.29	123 , 2.80
C6_43	3714 , 84.62	553 , 12.60	122 , 2.78
C6_44	3192 , 72.73	1075 , 24.49	122 , 2.78
C6_45	2701 , 61.54	1565 , 35.66	123 , 2.80

2. Patterns in student performance

In computing student performance, correct responses were assigned one mark while both wrong and non-responses were assigned zero marks because otherwise, the sample size would significantly decrease, thus affecting the overall findings adversely. Furthermore, question 30 and 41 were omitted from the analyses as they were excluded from the answer key. Finally, there was no question 40 in the question paper. Hence, the analyses were done for 42 items. Accordingly, Figure 50 shows the national performance of students in Dhivehi_Gr7 in the NALO 2021.

As inferred from Figure 50, the average performance of students in Dhivehi_Gr7 in the NALO 2021 is 58.11 as indicated by the mean score. Moreover, 20.2% of students achieved higher than 75th percentile marks (71.43) while 49.4% of students achieved higher than 50th percentile marks (59.52). These results indicate that a relatively greater proportion of students achieved higher than the pass mark of 40% in Dhivehi_Gr7.

Figure 51 shows the atoll-wise average performance of students in Dhivehi_Gr7 in the NALO 2021. The national average (58.1) is shown by the line graph while the averages for the atolls and Male' are indicated by the bars. As seen from Figure 51, 13 of the cases scored an average mark equal to or above the national average. Among those that scored above the national average, Meemu atoll scored the highest (M = 65.3). On the other hand, Gnaviyani atoll scored the lowest and below the national average with a mean score of 51.4.

In addition to the descriptive analysis, further investigations were conducted to test if there is statistically significant difference between the national average and that of the atolls, using one sample t-test. Table 45 shows the results of the t-tests for all the 20 atolls and Male'. According to the results in Table 45, the difference in student performance is statistically significant for a number of atolls as highlighted. Haa Alif, Raa, Baa, Meemu and Faafu atoll scored a significantly higher mean score while Lhaviyani, Laamu, Gnaviyani, and Seenu atoll scored significantly lower mean scores.

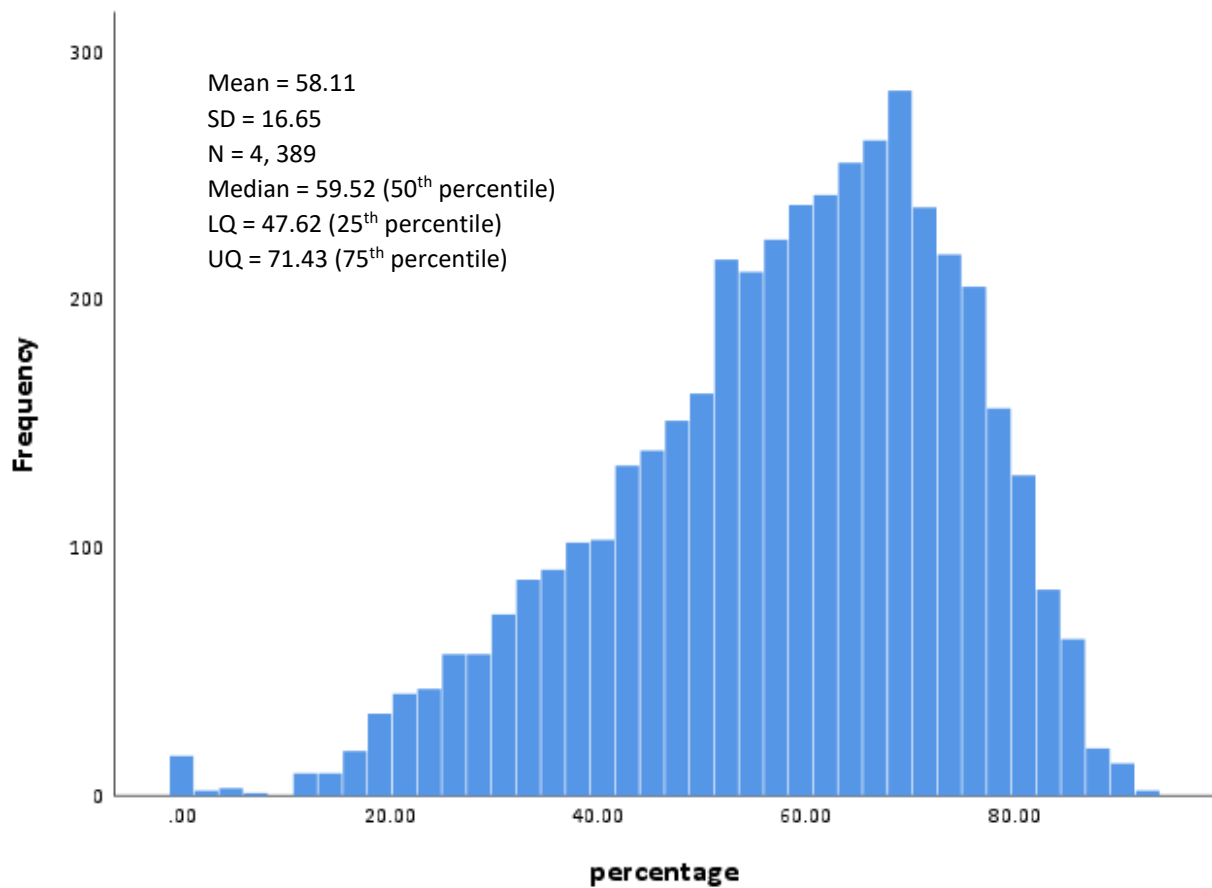


Figure 50 Distribution of student national performance in Dhivehi_Gr7

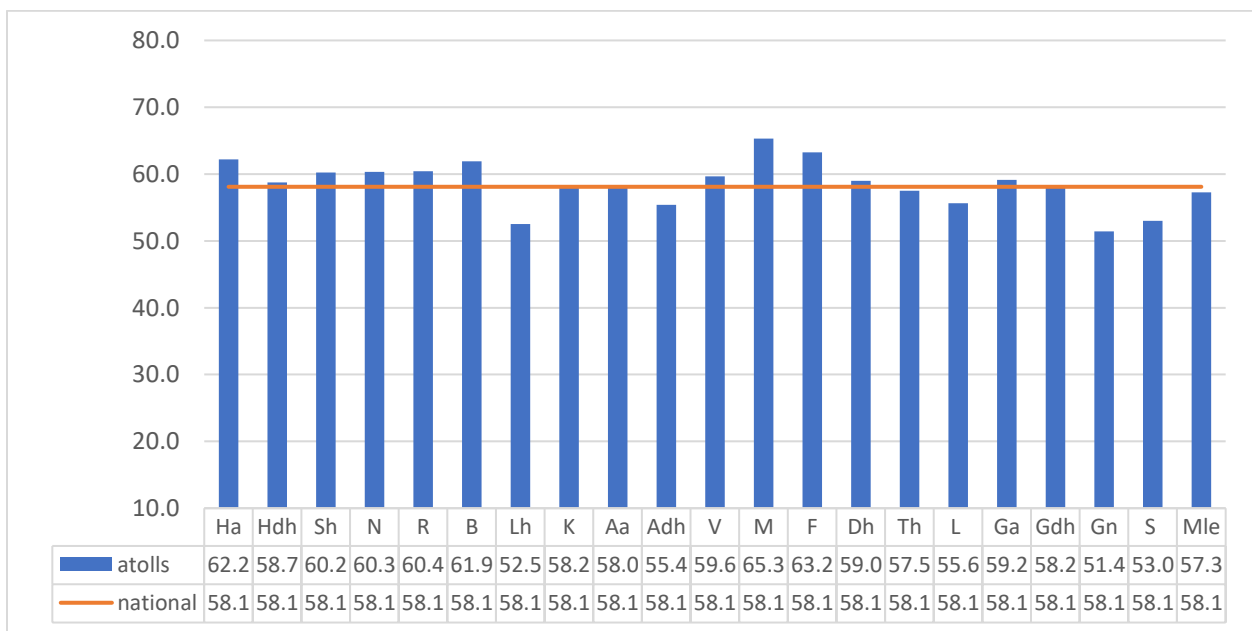


Figure 51 Atoll-wise performance in Dhivehi_Gr7

Table 36 Comparison of atoll and national performance (Dhivehi_Gr7)

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	4.246	264	0.000	4.119	2.209	6.029
Hdh	0.712	356	0.477	0.630	-1.111	2.371
Sh	1.917	206	0.057	2.137	-0.060	4.334
N	1.671	155	0.097	2.248	-0.410	4.907
R	2.506	309	0.013	2.315	0.497	4.132
B	2.589	128	0.011	3.786	0.892	6.680
Lh	-4.287	121	0.000	-5.563	-8.131	-2.994
K	0.119	205	0.905	0.141	-2.191	2.472
Aa	-0.040	147	0.968	-0.057	-2.834	2.721
Adh	-1.932	154	0.055	-2.693	-5.446	0.060
V	0.607	38	0.547	1.546	-3.608	6.699
M	5.235	82	0.000	7.219	4.476	9.961
F	3.448	98	0.001	5.128	2.177	8.078
Dh	0.478	93	0.634	0.866	-2.733	4.466
Th	-0.528	168	0.598	-0.577	-2.735	1.581
L	-2.089	234	0.038	-2.487	-4.833	-0.141
Ga	0.892	166	0.373	1.053	-1.277	3.383
Gdh	0.087	194	0.931	0.105	-2.263	2.472
Gn	-4.485	146	0.000	-6.690	-9.638	-3.742
S	-4.492	238	0.000	-5.111	-7.353	-2.870
Mle	-1.536	866	0.125	-0.845	-1.924	0.235

Figure 52 shows the atoll-wise as well as national performance of students based on gender in Dhivehi_Gr7. As seen in Figure 52, girls performed better at the national as well as at the atoll levels based on percentage mean scores. The national mean scores for girls and boys are 62.9 and 53.5 respectively. The largest difference is observed in Vaavu atoll where girls performed much better (M = 68.3) than boys (M = 52.9). The least difference is observed in Shaviyani atoll where the mean scores for girls and boys are 63.5 and 57.0 respectively.

Further to these descriptive analyses, independent sample t-test was used to test if there is a statistically significant difference between boys and girls at the national as well as atoll levels. According to the results in Table 46, there is a statistically significant difference in performance between boys and girls at both the national and individual atoll levels (in all atolls). Girls performed significantly better in all these cases.

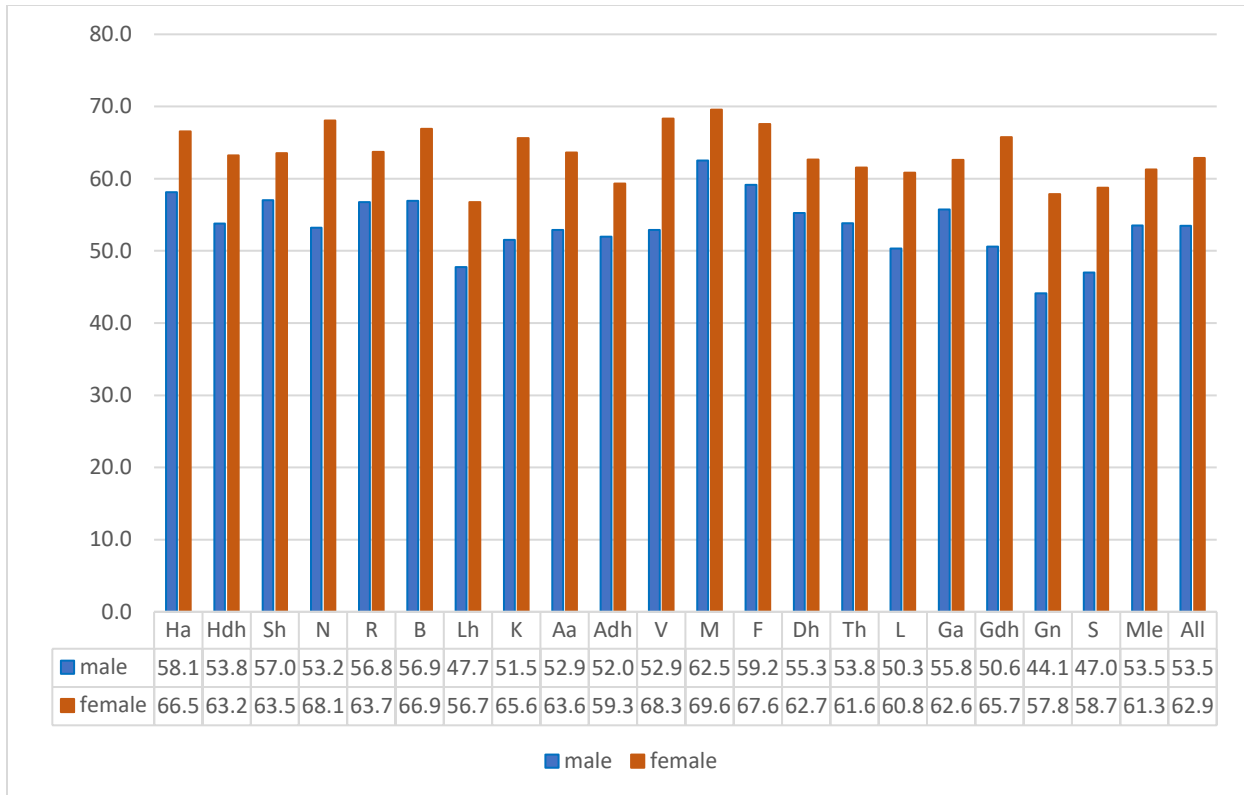


Figure 52 Gender-based, atoll-wise performance in Dhivehi_Gr7

Table 37 Gender-wise comparison of performance at atoll and national level (Dhivehi_Gr7)

Atoll	F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
Ha*	5.655	0.018	-4.512	258	0.000	-8.414	1.865	-12.086	-4.742
Hdh	2.414	0.121	-5.532	355	0.000	-9.421	1.703	-12.770	-6.071
Sh*	11.197	0.001	-2.987	194	0.003	-6.509	2.179	-10.807	-2.211
N	2.615	0.108	-6.133	154	0.000	-14.859	2.423	-19.645	-10.073
R	0.764	0.383	-3.828	308	0.000	-6.931	1.810	-10.493	-3.368
B*	7.913	0.006	-3.584	111	0.001	-10.003	2.791	-15.533	-4.473
Lh*	13.850	0.000	-3.543	97	0.001	-8.995	2.539	-14.035	-3.956
K*	4.145	0.043	-6.577	203	0.000	-14.078	2.140	-18.299	-9.858
Aa	1.439	0.232	-3.996	146	0.000	-10.709	2.680	-16.006	-5.412
Adh	3.701	0.056	-2.512	138	0.013	-7.356	2.928	-13.146	-1.565
V*	7.457	0.010	-3.648	34	0.001	-15.425	4.229	-24.022	-6.828
M	1.468	0.229	-2.579	81	0.012	-7.029	2.725	-12.450	-1.607
F*	4.710	0.032	-2.961	92	0.004	-8.409	2.840	-14.049	-2.768
Dh	2.377	0.127	-2.076	92	0.041	-7.396	3.562	-14.471	-0.320
Th	2.248	0.136	-3.664	167	0.000	-7.737	2.111	-11.906	-3.568
L	1.021	0.313	-4.589	233	0.000	-10.489	2.286	-14.992	-5.986
Ga	0.245	0.621	-2.965	165	0.003	-6.839	2.306	-11.393	-2.286

Gdh*	15.553	0.000	-7.049	169	0.000	-15.155	2.150	-19.398	-10.911
Gn	1.635	0.203	-4.941	145	0.000	-13.710	2.775	-19.194	-8.226
S	0.222	0.638	-5.469	237	0.000	-11.755	2.149	-15.989	-7.520
Mle	1.331	0.249	-7.256	865	0.000	-7.759	1.069	-9.857	-5.660
All*	61.419	0.000	-19.446	4326	0.000	-9.373	0.482	-10.318	-8.428

* results for unequal variances reported

3. Skill-wise performance

The 42 items in the Dhivehi_Gr7 NALO 2021 tested a total of eight major Dhivehi language skills (competencies). These are (i) spellings, C2, (ii) parts of speech, gender, number, tense, articles etc, C5, (iii) understands information presented in authentic material, C6, (iv) comprehends passages of intermediate difficulty, C7a, (v) comprehends complex passages with high difficulty, C8, (vi) know meanings of “*Adhabee bas*” literary devices, *raivaru* etc, C9, (vii) identifying subject and predicate of a sentence, C11, and (viii) features of letter writing, C12. Figure 53 shows the performance in these competencies at the national level. According to Figure 53, students performed the best in understanding information presented in authentic material (M = 72.95) while they performed the worst in identifying subject and predicate of a sentence (M = 39.06).

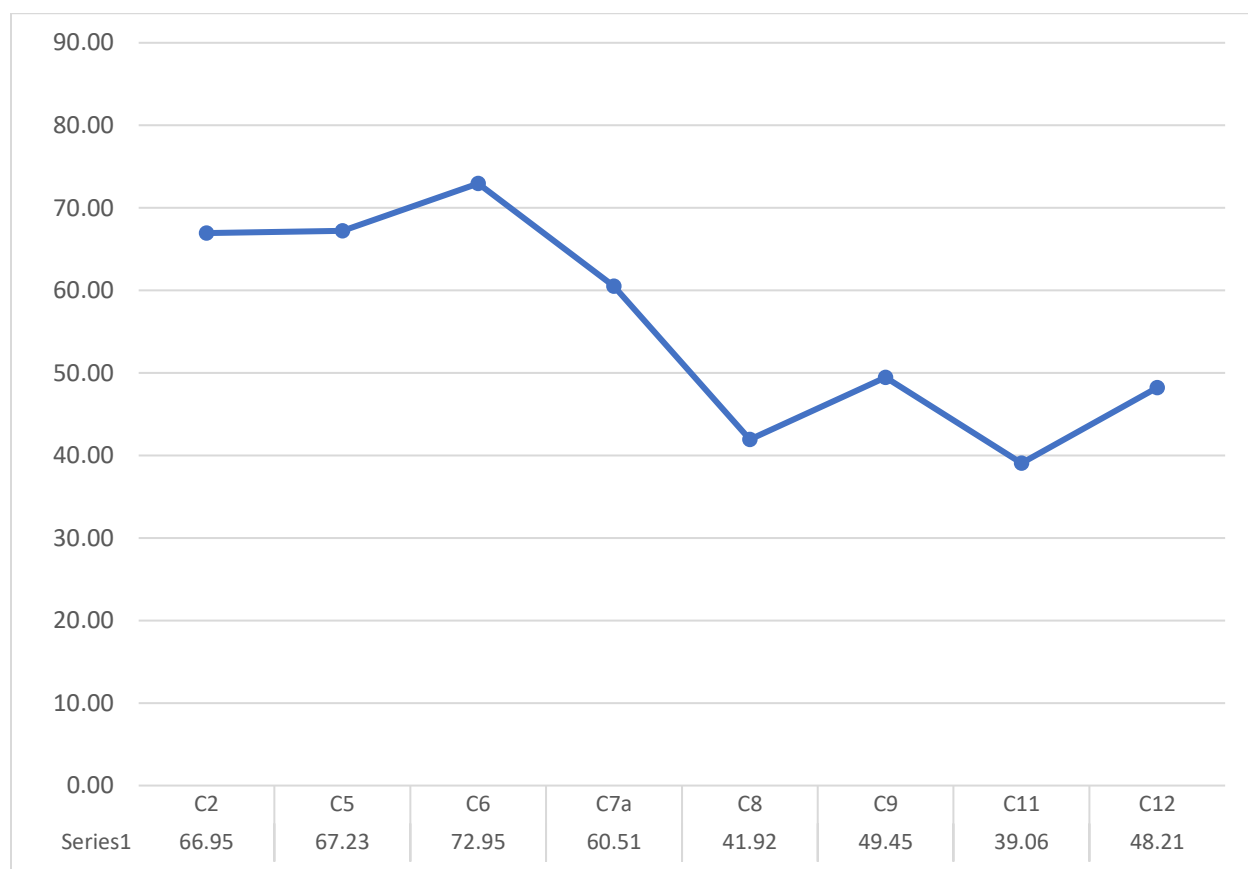


Figure 53 Skill-wise performance in Dhivehi_Gr7

Figure 54 shows the performance in C2 (spellings) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

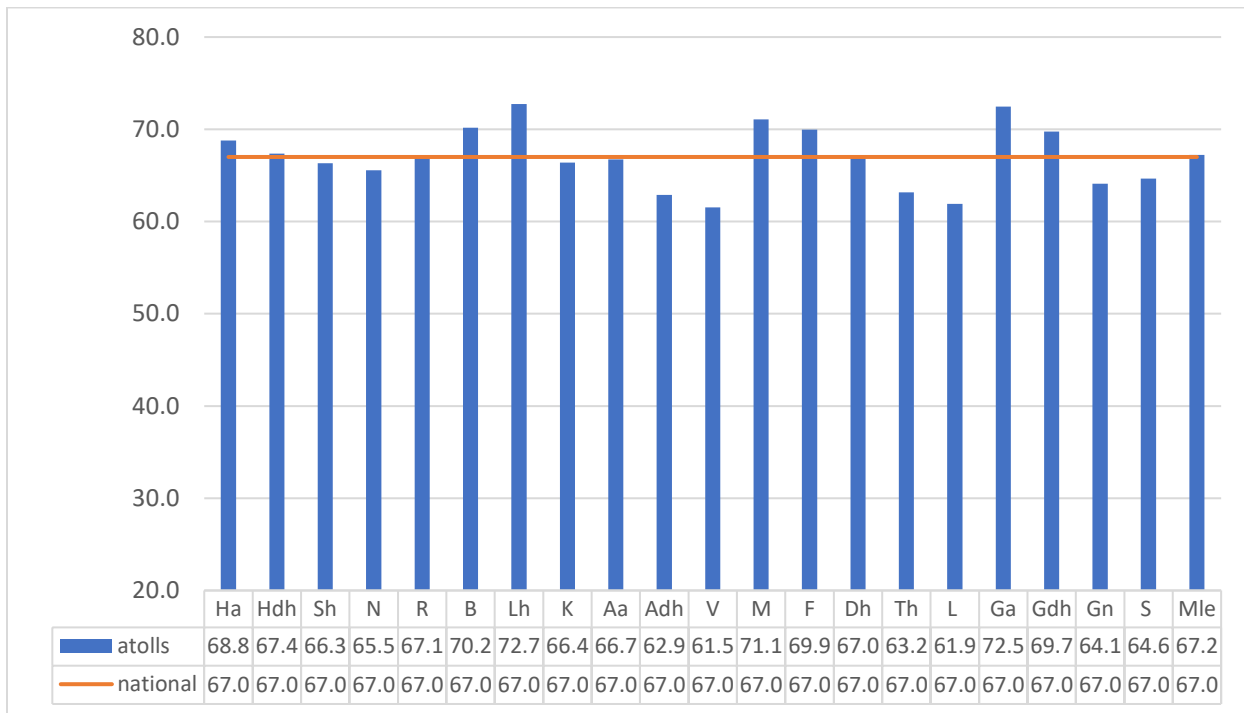


Figure 54 Atoll-wise performance in C2, Dhivehi_Gr7

As depicted in Figure 54, 11 of the atolls scored equal to or higher than the national average while the remaining 10 scored lower. Lhaviyani atoll scored the highest (M = 72.7) while the lowest was scored by Vaavu atoll (M = 61.5). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 47. As evident from Table 47, Lhaviyani and Gaafu Alif atoll performed significantly higher than the national average while Laamu atoll performed significantly lower.

Table 38 Comparison of performance in C2, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Lh	2.528	121	0.013	5.746	1.246	10.246
L	-2.779	234	0.006	-5.085	-8.690	-1.480
Ga	2.655	166	0.009	5.455	1.398	9.512

Figure 55 shows the performance in C5 (parts of speech, gender, number, tense, articles, etc) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

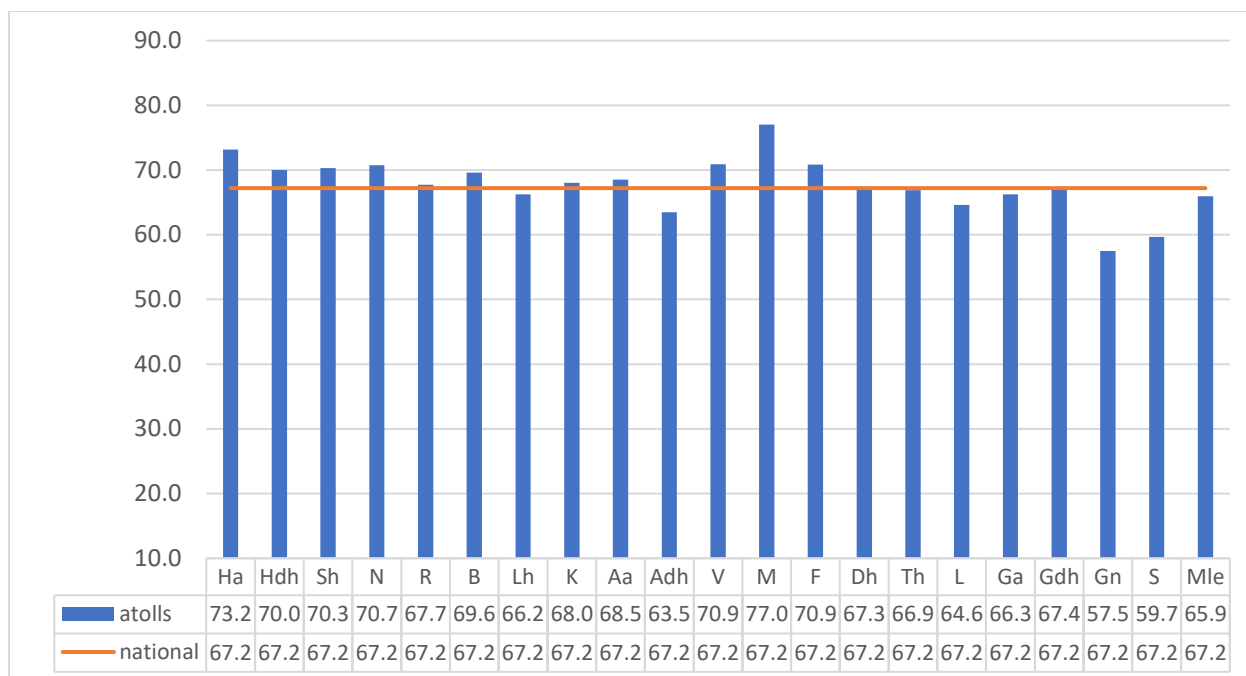


Figure 55 Atoll-wise performance in C5, Dhivehi_Gr7

As depicted in Figure 55, 13 of the atolls scored equal to or higher than the national average while the remaining 8 scored lower. Meemu atoll scored the highest ($M = 77.0$) while the lowest was scored by Gnaviyani atoll ($M = 57.5$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 48. As evident from Table 48, Haa Alif, Haa Dhaalu, Shaviyani, Noonu, and Meemu atoll performed significantly higher than the national average while Male', Alif Dhaalu, Gnaviyani, and Seenu atoll performed significantly lower.

Table 39 Comparison of performance in C5, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	5.862	264	0.000	5.954	3.954	7.953
Hdh	2.895	356	0.004	2.808	0.901	4.715
Sh	2.448	206	0.015	3.090	0.601	5.578
N	2.444	155	0.016	3.542	0.679	6.405
Adh	-2.271	154	0.025	-3.744	-7.001	-0.487
M	6.852	82	0.000	9.822	6.970	12.673
Gn	-5.530	146	0.000	-9.717	-13.189	-6.244
S	-5.419	238	0.000	-7.546	-10.290	-4.803
Mle	-1.961	866	0.050	-1.258	-2.518	0.001

Figure 56 shows the performance in C6 (understands information presented in authentic material) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

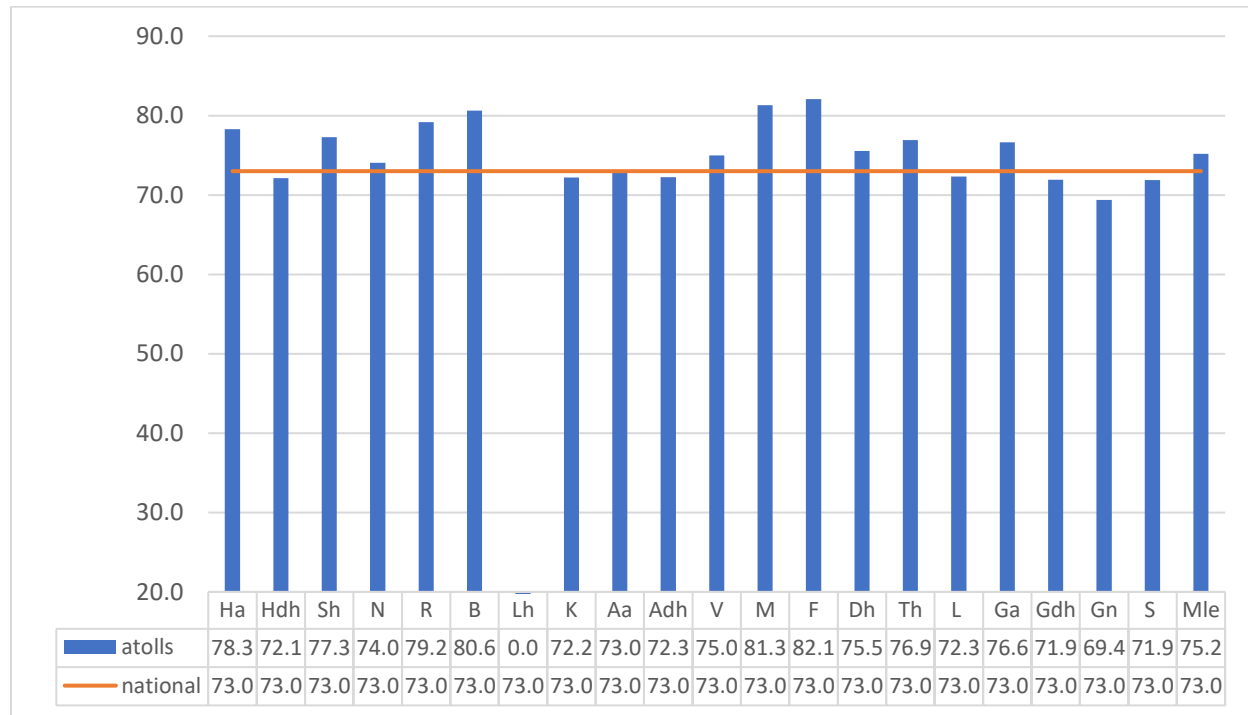


Figure 56 Atoll-wise performance in C6, Dhivehi_Gr7

As depicted in Figure 56, 13 of the atolls scored equal to or higher than the national average while the remaining 7 scored lower. Faafu atoll scored the highest (M = 82.1) while the lowest was scored by Gnaviyani atoll (M = 69.4). Results of Lhaviyani atoll for this component were not available in the original data file, hence, there is no bar for the atoll. Consequently, Lhaviyani atoll is excluded from the proceeding t-test. A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 49. As evident from Table 49, all the atolls including Male’ performed significantly higher than the national average while none of the atolls performed significantly lower.

Table 40 Comparison of performance in C6, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	3.014	264	0.003	5.302	1.838	8.766
Sh	2.086	206	0.038	4.295	0.235	8.354
R	3.917	309	0.000	6.194	3.082	9.305
B	3.377	128	0.001	7.620	3.156	12.084
M	3.339	82	0.001	8.325	3.366	13.285

F	3.346	98	0.001	9.071	3.691	14.450
Th	1.971	168	0.050	3.923	-0.007	7.853
Mle	2.232	866	0.026	2.202	0.266	4.138

Figure 57 shows the performance in C7a (comprehends passages of intermediate difficulty) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

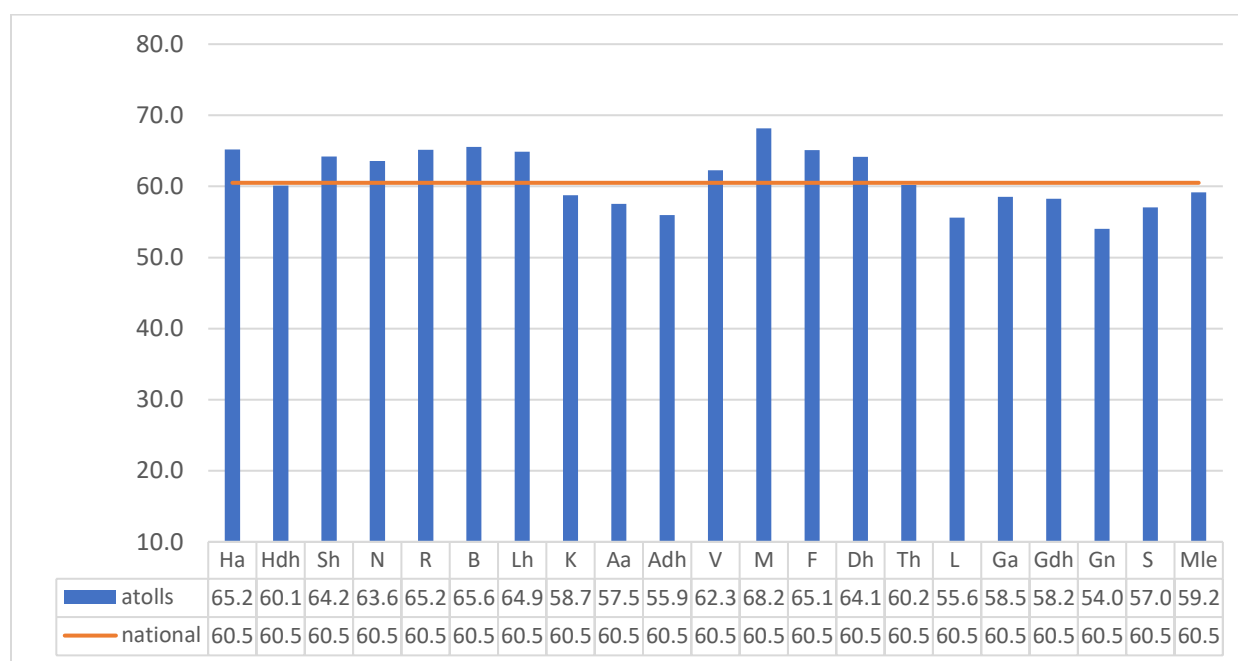


Figure 57 Atoll-wise performance in C7a, Dhivehi_Gr7

As depicted in Figure 57, 10 of the atolls scored equal to or higher than the national average while the remaining 11 scored lower. Meemu atoll scored the highest (M = 68.2) while the lowest was scored by Gnaviyani atoll (M = 54.0). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 50. As evident from Table 50, Haa Alif, Shaviyani, Raa, Baa, Meemu, and Faafu atoll performed significantly higher than the national average while Alif Dhaalu, Laamu, Gnaviyani, and Seenu atoll performed significantly lower.

Table 41 Comparison of performance in C7a, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	2.939	264	0.004	4.675	1.543	7.806
Sh	2.145	206	0.033	3.681	0.297	7.066
R	3.272	309	0.001	4.661	1.858	7.463

B	2.161	128	0.033	5.058	0.427	9.689
Adh	-2.153	154	0.033	-4.556	-8.736	-0.375
M	3.366	82	0.001	7.657	3.131	12.183
F	2.011	98	0.047	4.579	0.061	9.097
L	-2.752	234	0.006	-4.877	-8.369	-1.386
Gn	-3.217	146	0.002	-6.467	-10.440	-2.494
S	-2.027	238	0.044	-3.477	-6.856	-0.098

Figure 58 shows the performance in C8 (comprehends complex passages high difficulty) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

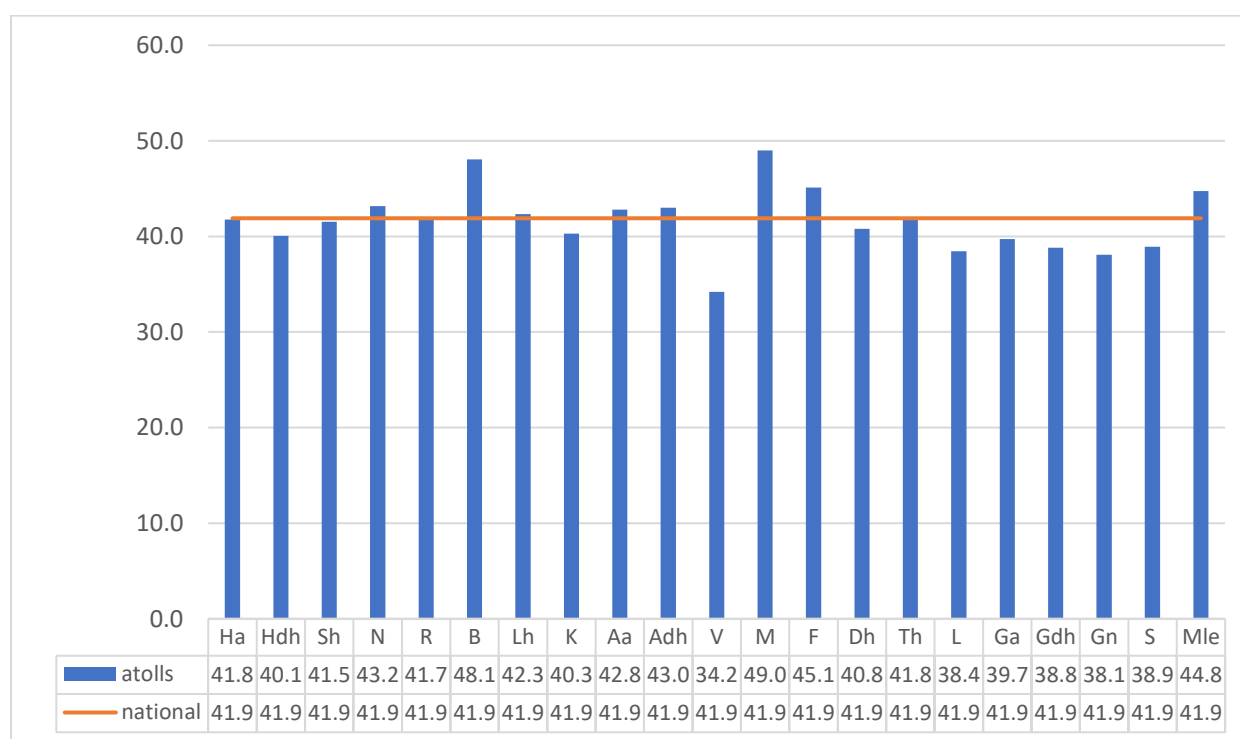


Figure 58 Atoll-wise performance in C8, Dhivehi_Gr7

As depicted in Figure 58, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. Meemu atoll scored the highest (M = 49.0) while the lowest was scored by Vaavu atoll (M = 34.2). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 51. As evident from Table 51, Male', Baa, and Meemu atolls scored significantly higher than the national average while none of the atolls performed significantly lower.

Table 42 Comparison of performance in C8, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
B	2.085	128	0.039	6.162	0.314	12.011
M	2.119	82	0.037	7.096	0.435	13.757
Mle	2.616	866	0.009	2.852	0.712	4.992

Figure 59 shows the performance in C9 (know meanings of “*adhabee bas*” literary devices, *raivaru* etc) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

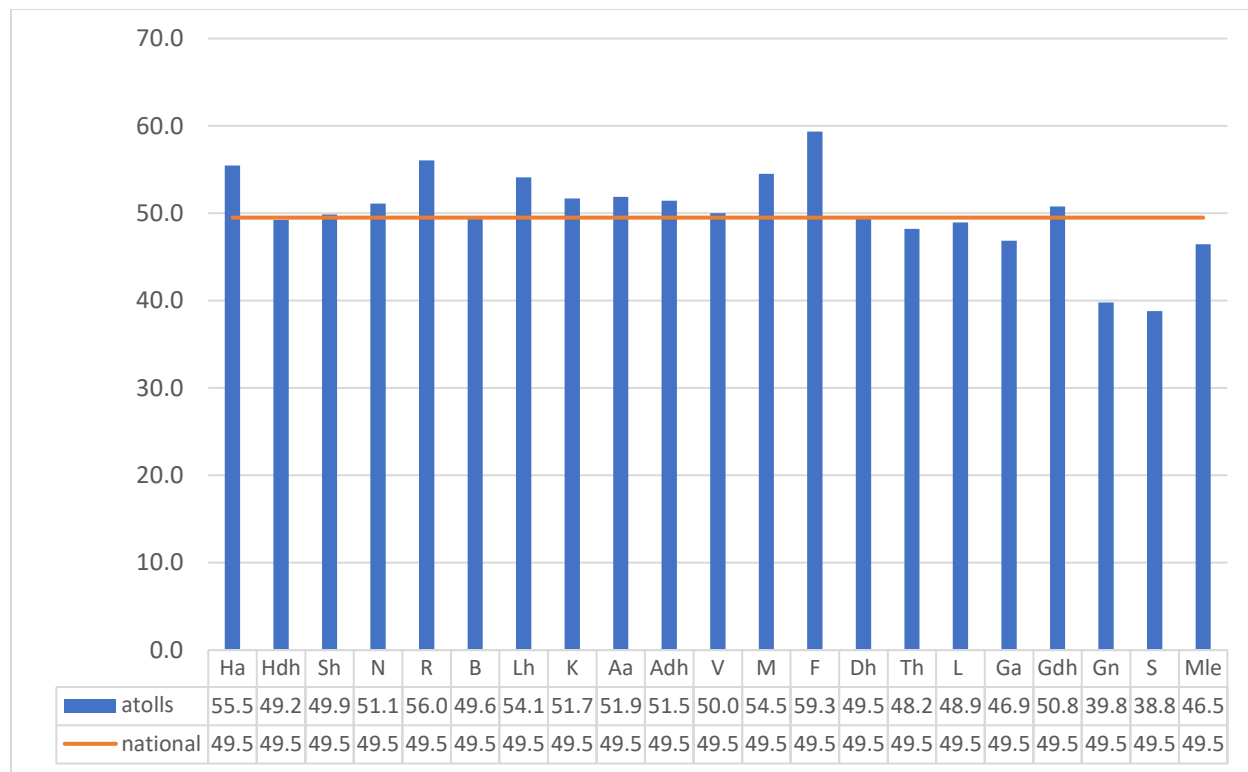


Figure 59 Atoll-wise performance in C9, Dhivehi_Gr7

As depicted in Figure 59, 14 of the atolls scored equal to or higher than the national average while the remaining 7 scored lower. Faafu atoll scored the highest (M = 59.3) while the lowest was scored by Seenu atoll (M = 38.8). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 52. As evident from Table 52, Haa Alif, Raa and Faafu atoll performed significantly higher than the national average while Male’, Gnaviyani and Seenu atoll performed significantly lower.

Table 43 Comparison of performance in C9, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	3.836	264	0.000	5.972	2.906	9.037
R	5.119	309	0.000	6.548	4.031	9.066
F	4.305	98	0.000	9.843	5.306	14.381
Gn	-4.317	146	0.000	-9.704	-14.147	-5.262
S	-6.289	238	0.000	-10.692	-14.042	-7.343
Mle	-3.698	866	0.000	-3.047	-4.664	-1.430

Figure 60 shows the performance in C11 (identifying subject and predicate of a sentence) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

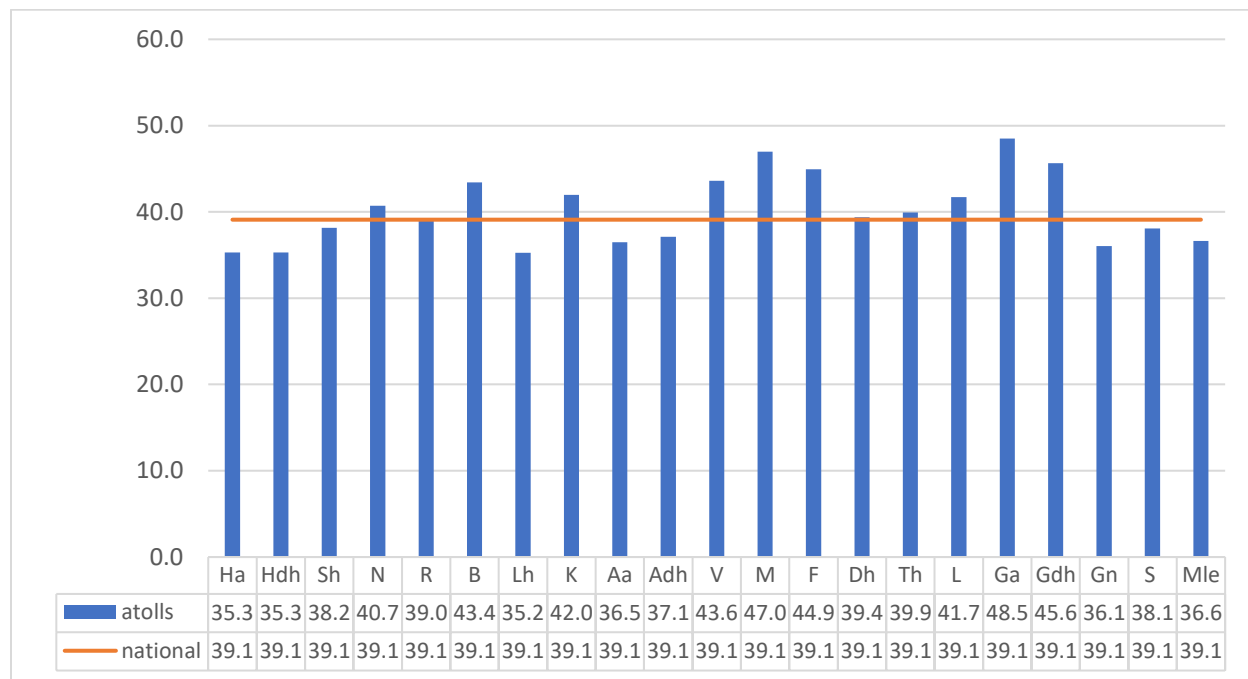


Figure 60 Atoll-wise performance in C11, Dhivehi_Gr7

As depicted in Figure 60, 11 of the atolls scored equal to or higher than the national average while the remaining 10 scored lower. Gaafu Dhaalu atoll scored the highest (M = 48.5) while the lowest was scored by Lhaviyani atoll (M = 35.2). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 53. As evident from Table 53, Meeu, Gaafu Alif, and Gaafu Dhaalu atoll performed significantly higher than the national average while Haa Dhaalu atoll and Male' performed significantly lower.

Table 44 Comparison of performance in C11, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-2.309	356	0.022	-3.806	-7.048	-0.564
M	2.040	82	0.045	7.888	0.196	15.580
Ga	3.774	166	0.000	9.403	4.483	14.323
Gdh	2.577	194	0.011	6.541	1.534	11.548
Mle	-2.160	866	0.031	-2.479	-4.733	-0.226

Figure 61 shows the performance in C12 (features of letter writing) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

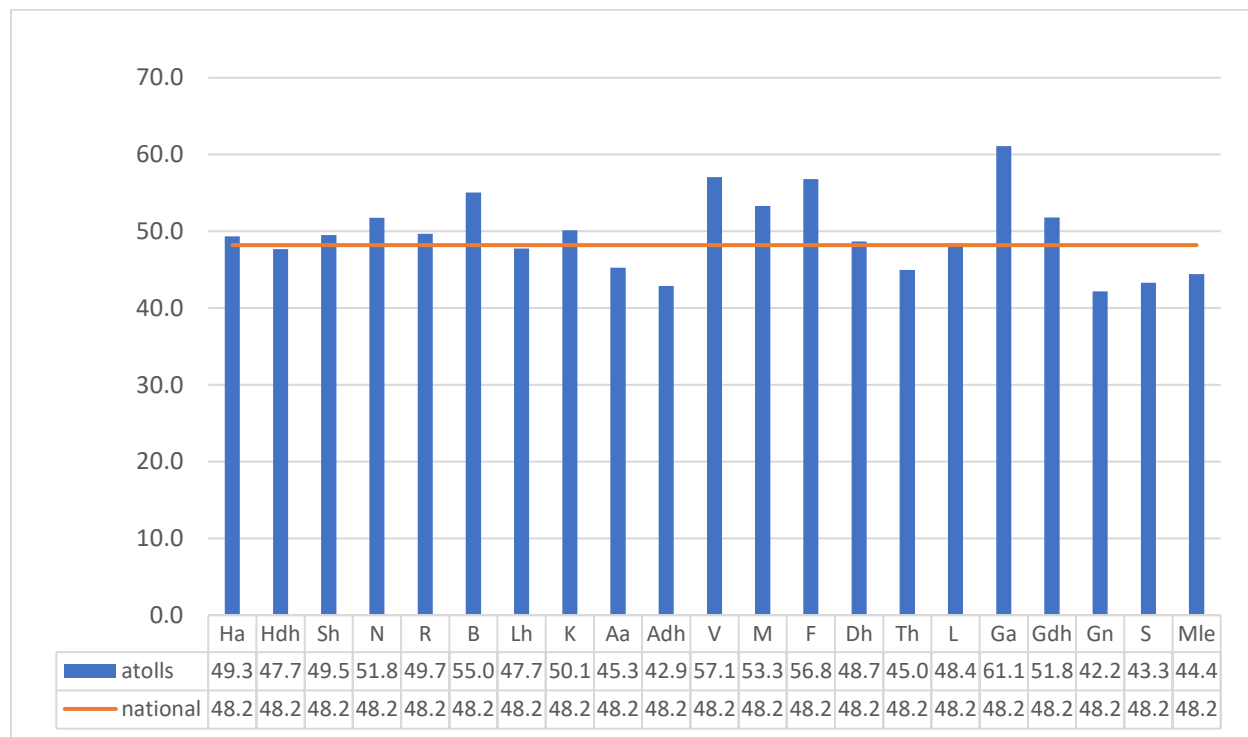


Figure 61 Atoll-wise performance in C12, Dhivehi_Gr7

As depicted in Figure 61, 13 of the atolls scored equal to or higher than the national average while the remaining 8 scored lower. Gaafu Alif atoll scored the highest (M = 61.1) while the lowest was scored by Gnaviyani atoll (M = 42.2). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 54. As evident from Table 54, Baa, Vaavu, Faafu, and Gaafu Alif atoll performed significantly higher than the national average while Male', Alif Dhaalu, Gnaviyani, and Seenu atoll performed significantly lower.

Table 45 Comparison of performance in C12, Dhivehi_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
B	3.098	128	0.002	6.839	2.471	11.207
Adh	-2.608	154	0.010	-5.297	-9.309	-1.285
V	2.106	38	0.042	8.851	0.342	17.361
F	3.436	98	0.001	8.618	3.641	13.595
Ga	6.929	166	0.000	12.878	9.208	16.547
Gn	-2.634	146	0.009	-6.023	-10.543	-1.503
S	-2.858	238	0.005	-4.895	-8.268	-1.521
Mle	-4.270	866	0.000	-3.794	-5.538	-2.050

GRADE 7 ENGLISH

1. Response Distribution

A total of 4,427 students from 191 schools across the nation sat the NALO 2021 English Gr 7 assessment. However, 15 of the cases had their gender not entered into the original data sheet. These were treated as missing data in respective analyses. Figure 62 shows the gender-wise breakdown of the candidates while Figure 63 shows the atoll-wise breakdown of the same.

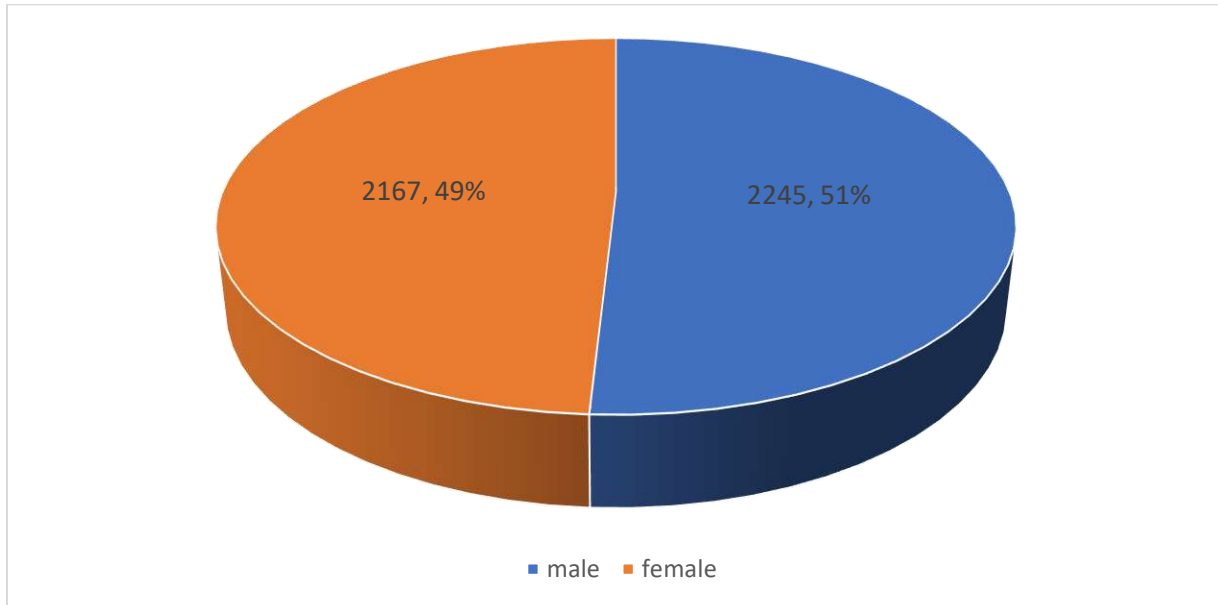


Figure 62 Gender-wise distribution of candidates (English_Gr7)

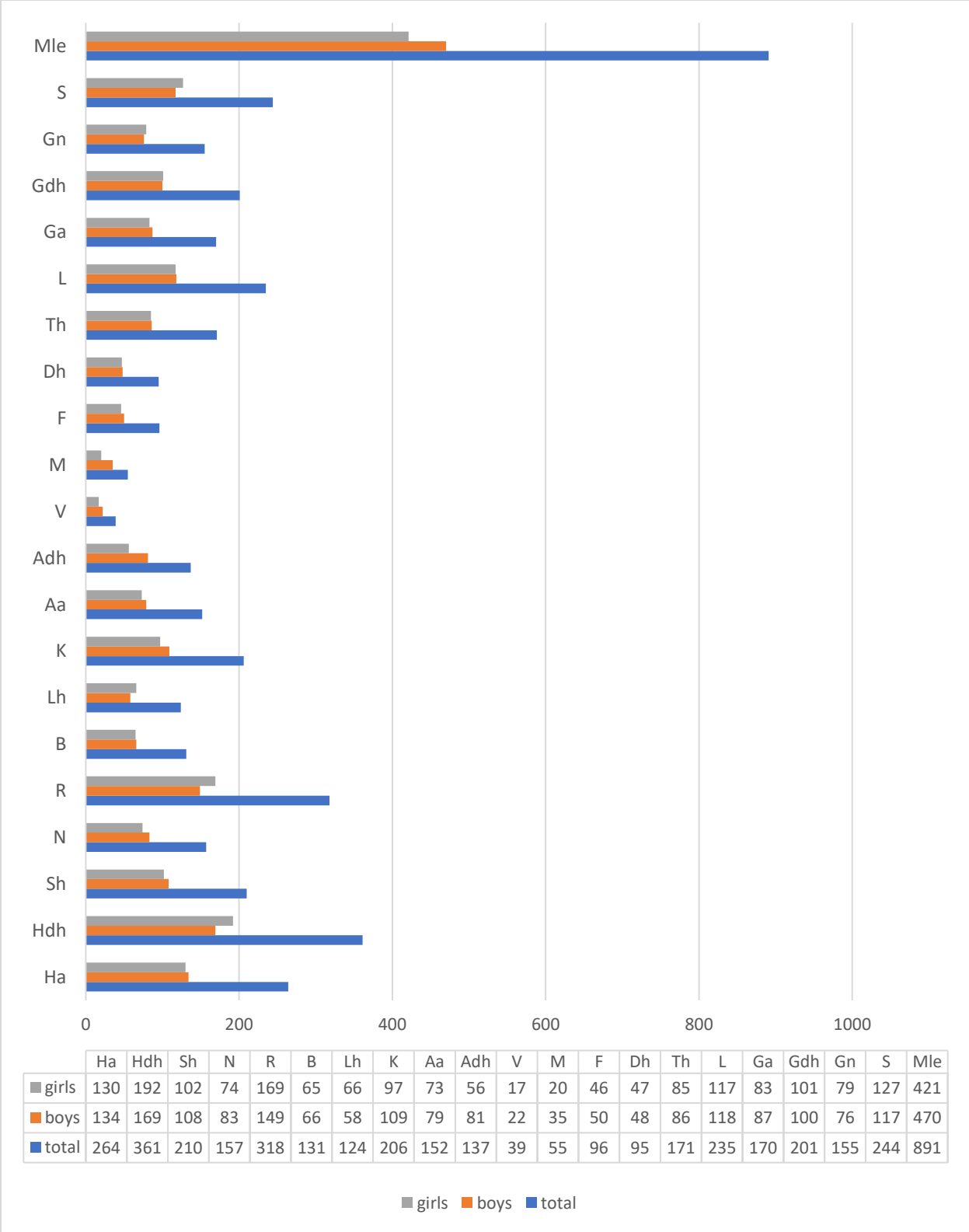


Figure 63 Atoll-wise distribution of candidates (English_Gr7)

Further, Table 55 shows the response patterns for the 37 items in English Gr 7 assessment of the NALO 2021. As seen from Table 55, question 7 was the most left out question by students. A total of 163 (3.68%) students did not attempt this question. The missing percentages for the rest of the items are less than 2%. None of the items were answered by all the students. The least skipped items were questions 4, 16, and 19 where the missing percentage was 0.52.

Table 46 Response patterns for English_Gr 7

Item	Correct (N , %)	Wrong (N , %)	Missing (N , %)
C1_1	4226 , 95.46	143 , 3.23	58 , 1.31
C1_2	3960 , 89.45	424 , 9.58	43 , 0.97
C2_3	2973 , 67.16	1413 , 31.92	41 , 0.93
C2_4	4056 , 91.62	348 , 7.86	23 , 0.52
C2_5	1782 , 40.25	2583 , 58.35	62 , 1.40
C2_6	1700 , 38.40	2672 , 60.36	55 , 1.24
C2_7	2535 , 57.26	1729 , 39.06	163 , 3.68
C2_8	1436 , 32.44	2959 , 66.84	32 , 0.72
C3_9	554 , 12.51	3830 , 86.51	43 , 0.97
C4_10	2856 , 64.51	1539 , 34.76	32 , 0.72
C4_11	1972 , 44.54	2421 , 54.69	34 , 0.77
C4_12	3367 , 76.06	1028 , 23.22	32 , 0.72
C4_13	4044 , 91.35	356 , 8.04	27 , 0.61
C4_14	3915 , 88.43	482 , 10.89	30 , 0.68
C4_15	2661 , 60.11	1707 , 38.56	59 , 1.33
C5_16	3945 , 89.11	459 , 10.37	23 , 0.52
C5_17	3376 , 76.26	1020 , 23.04	31 , 0.70
C5_18	3855 , 87.08	546 , 12.33	26 , 0.59
C5_19	3728 , 84.21	676 , 15.27	23 , 0.52
C6_20	1382 , 31.22	2973 , 67.16	72 , 1.63
C6_21	1717 , 38.78	2664 , 60.18	46 , 1.04
C6_22	2580 , 58.28	1783 , 40.28	64 , 1.45
C6_23	1088 , 24.58	3285 , 74.20	54 , 1.22
C7_24	3021 , 68.24	1349 , 30.47	57 , 1.29
C7_25	3329 , 75.20	1018 , 23.00	80 , 1.81
C7_26	2723 , 61.51	1655 , 37.38	49 , 1.11
C7_27	1302 , 29.41	3055 , 69.01	70 , 1.58
C7_28	3736 , 84.39	632 , 14.28	59 , 1.33
C7_29	3552 , 80.23	826 , 18.66	49 , 1.11
C7_30	2308 , 52.13	2080 , 46.98	39 , 0.88
C7_31	2223 , 50.21	2157 , 48.72	47 , 1.06
C8_32	3334 , 75.31	1049 , 23.70	44 , 0.99
C8_33	1744 , 39.39	2643 , 59.70	40 , 0.90

C8_34	1782	,	40.25	2583	,	58.35	62	,	1.40
C8_35	1950	,	44.05	2393	,	54.05	84	,	1.90
C8_36	2265	,	51.16	2109	,	47.64	53	,	1.20
C8_37	2786	,	62.93	1591	,	35.94	50	,	1.13

2. Patterns in student performance

In computing student performance, correct responses were assigned one mark while both wrong and non-responses were assigned zero marks because otherwise, the sample size would significantly decrease, thus affecting the overall findings adversely. Accordingly, Figure 64 shows the national performance of students in English_Gr7 in the NALO 2021.

As inferred from Figure 64, the average performance of students in English_Gr7 in the NALO 2021 is 60.91 as indicated by the mean score. Moreover, 24.8% of students achieved higher than 75th percentile marks (72.97) while 49.1% of students achieved higher than 50th percentile marks (62.16). These results indicate that a relatively greater proportion of students achieved higher than the pass mark of 40% in English_Gr7.

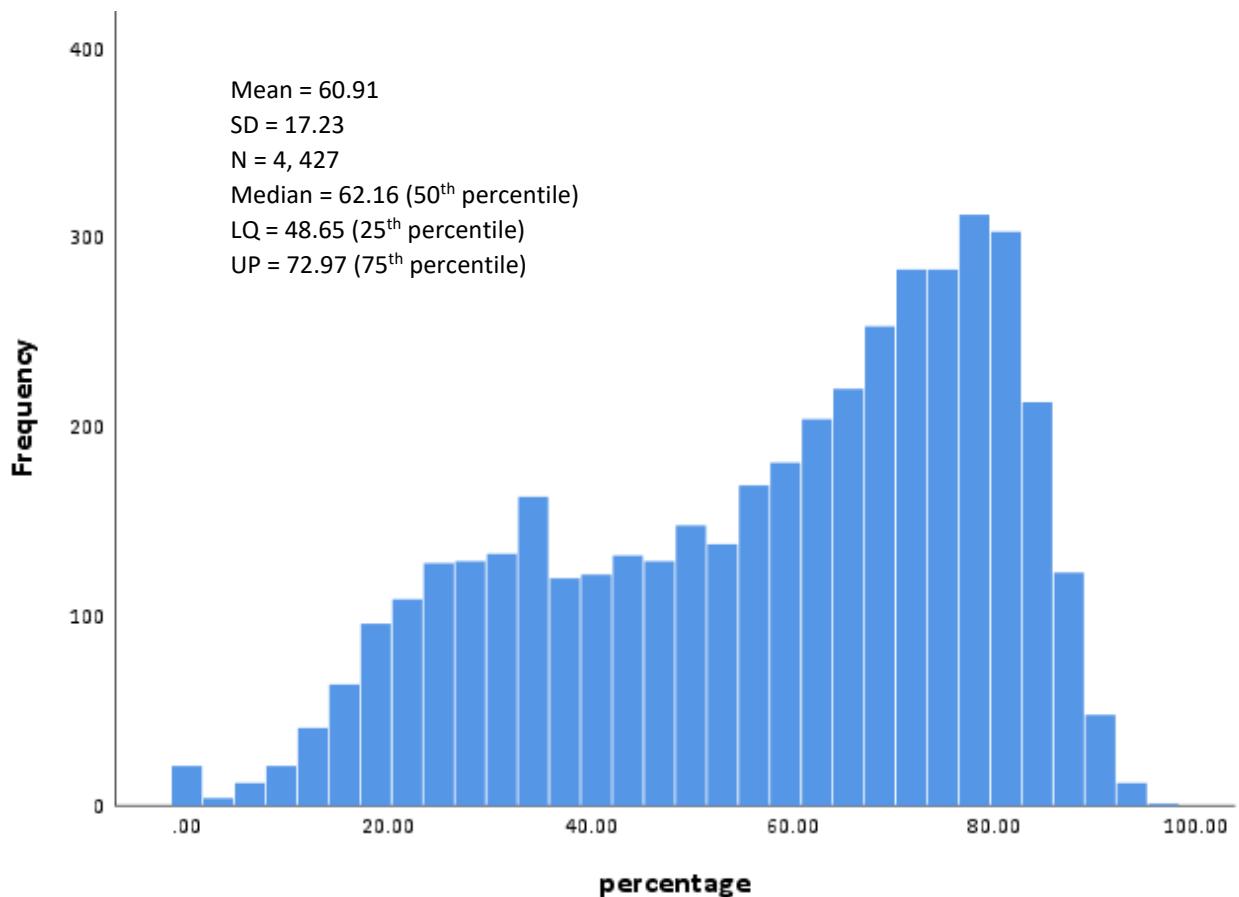


Figure 64 Distribution of student national performance in English_Gr7

Figure 65 shows the atoll-wise average performance of students in English_Gr7 in the NALO 2021. The national average (60.9) is shown by the line graph while the averages for the atolls and Male' are indicated by the bars. As seen from Figure 65, four of the cases scored an average mark equal to or above the national average. Among those that scored above the national average, Male' scored the highest (M = 69.8). On the other hand, Faafu atoll scored the lowest and below the national average with a mean score of 53.6.

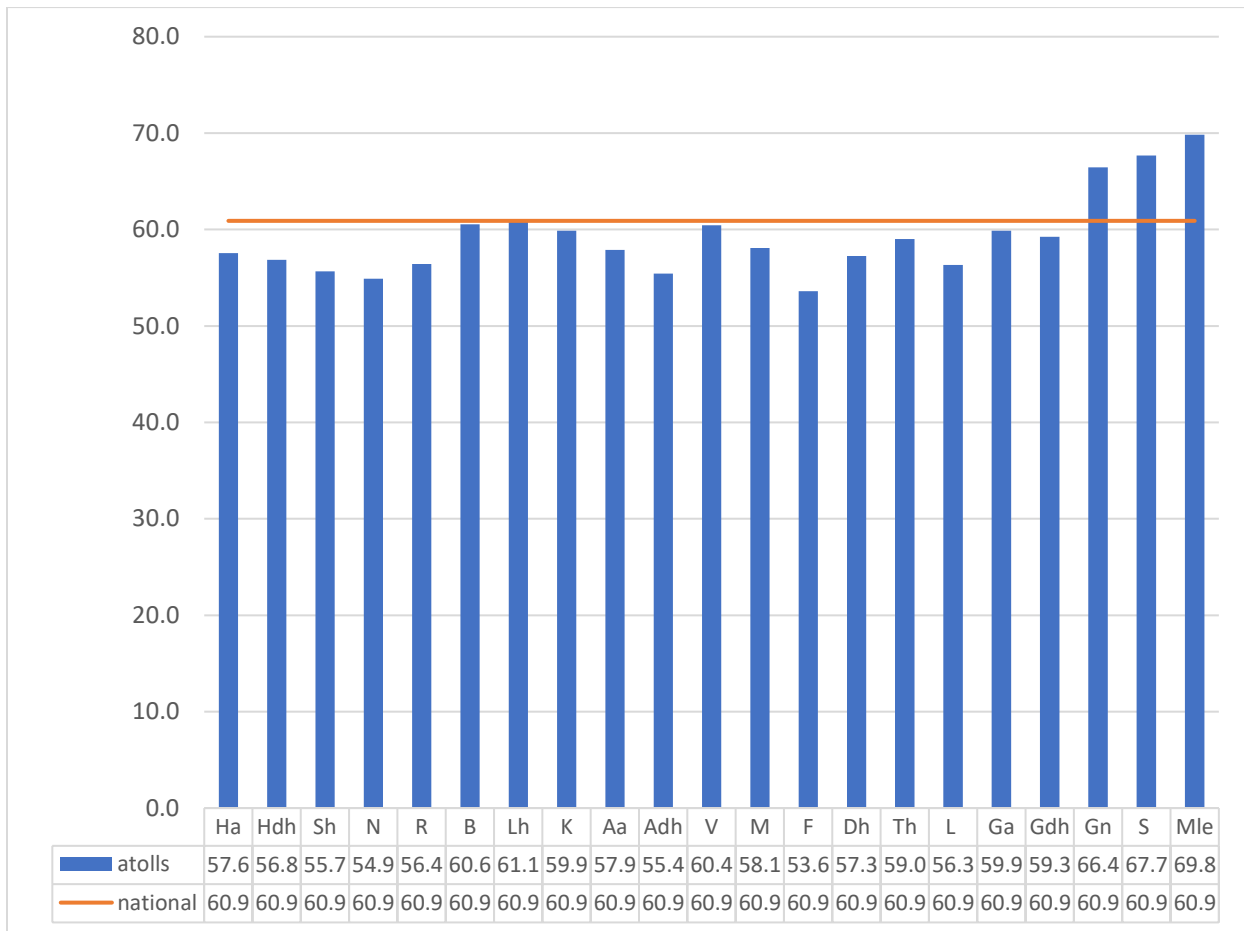


Figure 65 Atoll-wise performance in English_Gr7

In addition to the descriptive analysis, further investigations were conducted to test if there is a statistically significant difference between the national average and that of the atolls, using one sample t-test. Table 56 shows the results of the t-tests for all the 20 atolls and Male'. According to the results in Table 56, the difference in student performance is statistically significant for many atolls as indicated in bold. Of these, Male', Gnaviyani, and Seenu atoll scored a significantly higher mean score while the rest scored significantly lower mean scores.

Table 47 Comparison of atoll and national performance (English_Gr7)

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-3.310	263	0.001	-3.345	-5.335	-1.355
Hdh	-4.290	360	0.000	-4.053	-5.911	-2.195
Sh	-4.531	209	0.000	-5.250	-7.534	-2.966
N	-4.307	156	0.000	-5.985	-8.731	-3.240
R	-4.884	317	0.000	-4.466	-6.265	-2.667
B	-0.215	130	0.830	-0.347	-3.547	2.853
Lh	0.114	123	0.909	0.173	-2.817	3.162
K	-0.853	205	0.395	-1.008	-3.337	1.322
Aa	-2.178	151	0.031	-3.006	-5.732	-0.279
Adh	-3.833	151	0.000	-5.477	-8.300	-2.654
V	-0.200	38	0.842	-0.471	-5.225	4.284
M	-1.372	54	0.176	-2.817	-6.933	1.299
F	-4.217	95	0.000	-7.297	-10.732	-3.861
Dh	-2.003	94	0.048	-3.631	-7.229	-0.033
Th	-1.597	170	0.112	-1.883	-4.211	0.444
L	-4.064	234	0.000	-4.569	-6.783	-2.354
Ga	-0.840	169	0.402	-1.028	-3.443	1.387
Gdh	-1.317	200	0.189	-1.642	-4.101	0.817
Gn	4.039	154	0.000	5.534	2.828	8.241
S	6.670	243	0.000	6.789	4.784	8.794
Mle	19.012	890	0.000	8.933	8.011	9.855

Figure 66 shows the atoll-wise as well as national performance of students based on gender in English_Gr7. As seen in Figure 66, girls performed better at national as well as atoll level based on percentage mean scores. The national mean scores for girls and boys are 64.6 and 57.4 respectively. The largest difference is observed in Vaavu atoll where girls performed much better (M = 69.3) than boys (M = 53.6). The least difference is observed in Gaafu Alif atoll where the mean scores for girls and boys are 60.9 and 58.9 respectively.

Further to these descriptive analyses, independent sample t-test was used to test if there is a statistically significant difference between boys and girls at the national as well as atoll levels. According to the results in Table 57, there is a statistically significant difference in performance between boys and girls at the national as well as in the majority of atolls (as shown in bold), indicating better performance of girls. The only two atolls where the difference is not significant are Meemu and Gaafu Alif atoll. The difference in mean score at the national level is 7.22.

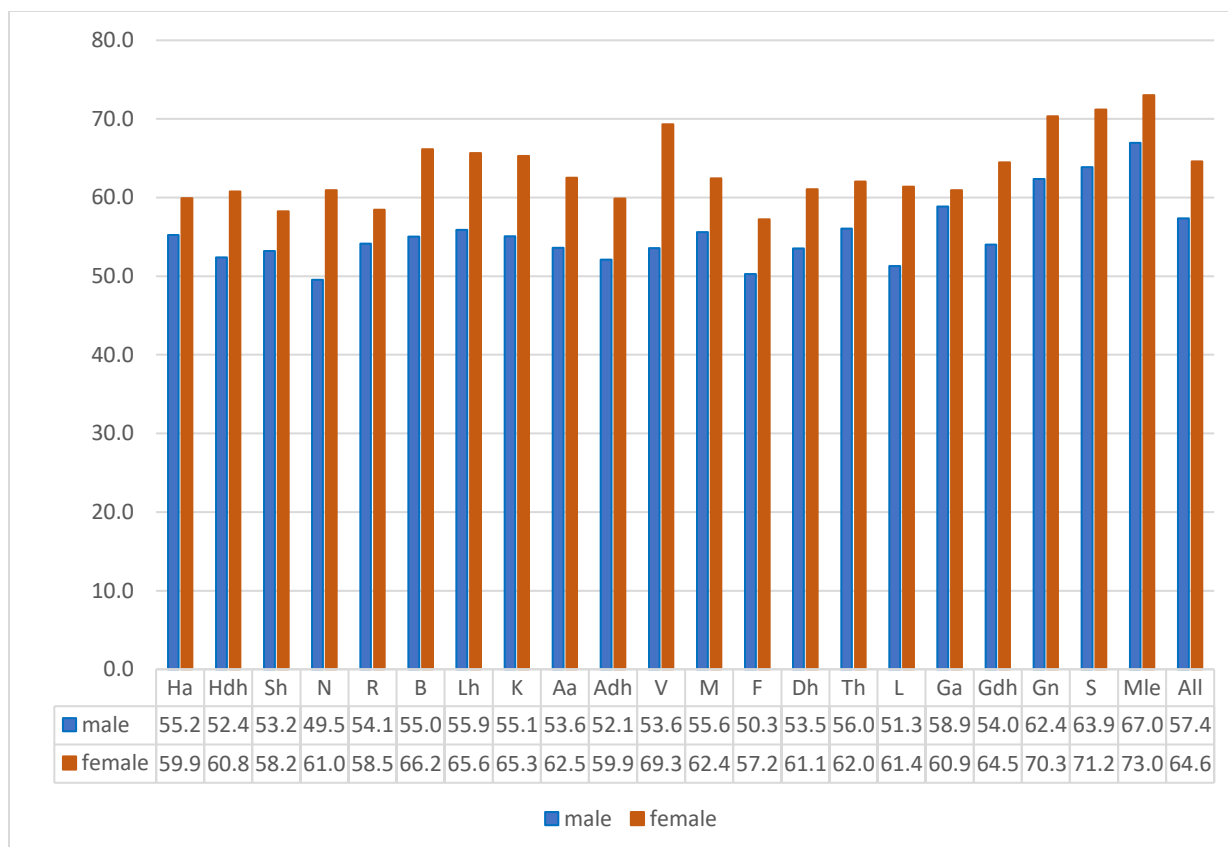


Figure 66 Gender-based, atoll-wise performances in English_Gr7

Table 48 Gender-wise comparison of performance at atoll and national level (English_Gr7)

Atoll	F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
Ha	0.389	0.533	-2.341	262	0.020	-4.693	2.005	-8.641	-0.746
Hdh	0.337	0.562	-4.561	359	0.000	-8.408	1.843	-12.033	-4.783
Sh	3.057	0.082	-2.193	208	0.029	-5.037	2.297	-9.567	-0.508
N*	4.155	0.043	-4.375	155	0.000	-11.429	2.612	-16.589	-6.269
R	0.504	0.478	-2.367	316	0.019	-4.307	1.819	-7.887	-0.727
B	0.280	0.598	-3.590	129	0.000	-11.117	3.097	-17.244	-4.990
Lh	3.404	0.067	-3.360	122	0.001	-9.772	2.908	-15.528	-4.015
K*	5.829	0.017	-4.545	203	0.000	-10.187	2.241	-14.606	-5.768
Aa	0.065	0.799	-3.337	150	0.001	-8.923	2.674	-14.206	-3.640
Adh*	10.965	0.001	-2.724	135	0.007	-7.775	2.854	-13.418	-2.131
V	4.082	0.051	-3.898	37	0.000	-15.753	4.041	-23.941	-7.566
M	0.797	0.376	-1.626	53	0.110	-6.835	4.204	-15.267	1.598
F	0.102	0.750	-2.041	94	0.044	-6.956	3.408	-13.722	-0.190
Dh	0.646	0.424	-2.113	93	0.037	-7.522	3.560	-14.591	-0.454
Th*	6.420	0.012	-2.590	164	0.010	-6.001	2.317	-10.577	-1.426
L	1.425	0.234	-4.687	233	0.000	-10.094	2.154	-14.338	-5.851

Ga	0.002	0.962	-0.839	168	0.403	-2.055	2.449	-6.891	2.780
Gdh	0.145	0.703	-4.382	199	0.000	-10.464	2.388	-15.172	-5.755
Gn*	5.665	0.019	-2.956	129	0.004	-7.963	2.694	-13.292	-2.634
S	0.215	0.643	-3.693	242	0.000	-7.336	1.987	-11.249	-3.423
Mle*	21.998	0.000	-6.688	877	0.000	-6.073	0.908	-7.856	-4.291
All*	34.537	0.000	-14.258	4391	0.000	-7.222	0.507	-8.215	-6.229

* results for unequal variances reported

3. Skill-wise performance

The 37 items in the NALO 2021 English_Gr7 tested a total of eight major English language skills (competencies). These are (i) knows names of objects, birds and animals not seen in daily life, C1, (ii) knows meanings, spellings, and opposites of words used in daily life, C2, (iii) correct sentence formation, punctuation, and sequencing, C3, (iv) comprehends very simple sentences or a simple paragraph, C4, (v) parts of speech, gender, number, tense, etc, C5, (vi) understands information presented in authentic material, C6, and (vii) comprehends texts of intermediate difficulty, identify test types and features, C7, and (viii) comprehends complex texts of high difficulty, C8. Figure 67 shows the performance in these competencies at the national level. According to Figure 67, students performed the best in knowing the names of objects, birds and animals that are not seen in daily life (M = 92.46) while they performed the worst in correct sentence formation, punctuation, and sequencing (M = 12.51).

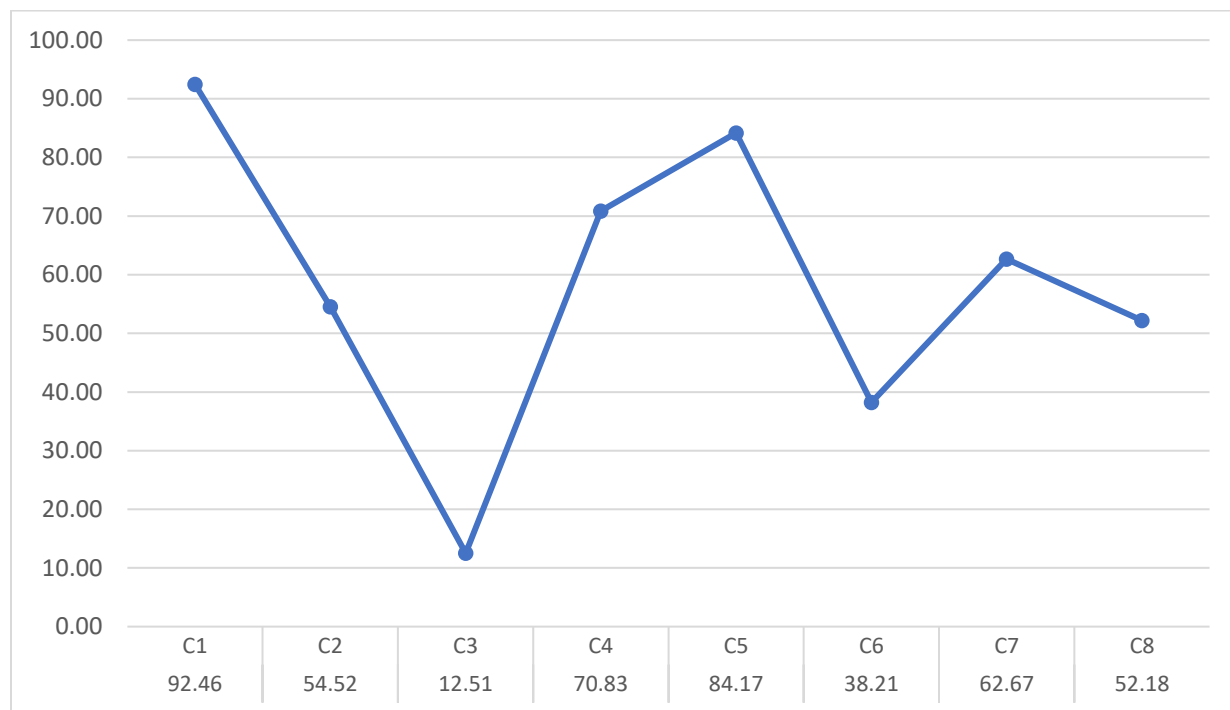


Figure 67 Skill-wise performance in English_Gr7

Figure 68 shows the performance in C1 (knows names of objects, birds and animals that are not seen in daily life) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 68, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. Seenu atoll scored the highest (M = 95.3) while the lowest was scored by both Alif Alif and Meemu atoll (M = 89.1). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 58. As evident from Table 58, Male' and Seenu atoll performed significantly higher than the national average while no atoll performed significantly lower.

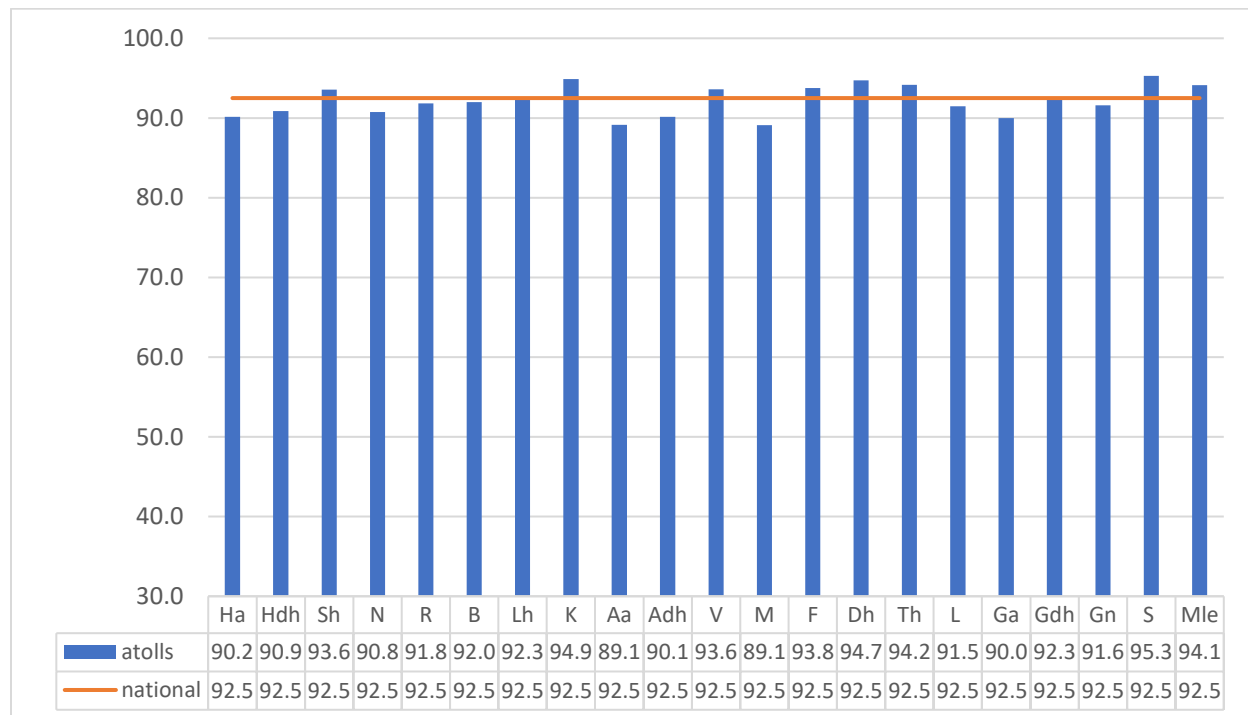


Figure 68 Atoll-wise performance in C1, English_Gr7

Table 49 Comparison of performance in C1, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
S	2.724	243	0.007	2.787	0.771	4.802
Mle	2.773	890	0.006	1.608	0.470	2.746

Figure 69 shows the performance in C2 (knows meanings, spellings, and opposites of words used in daily life) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

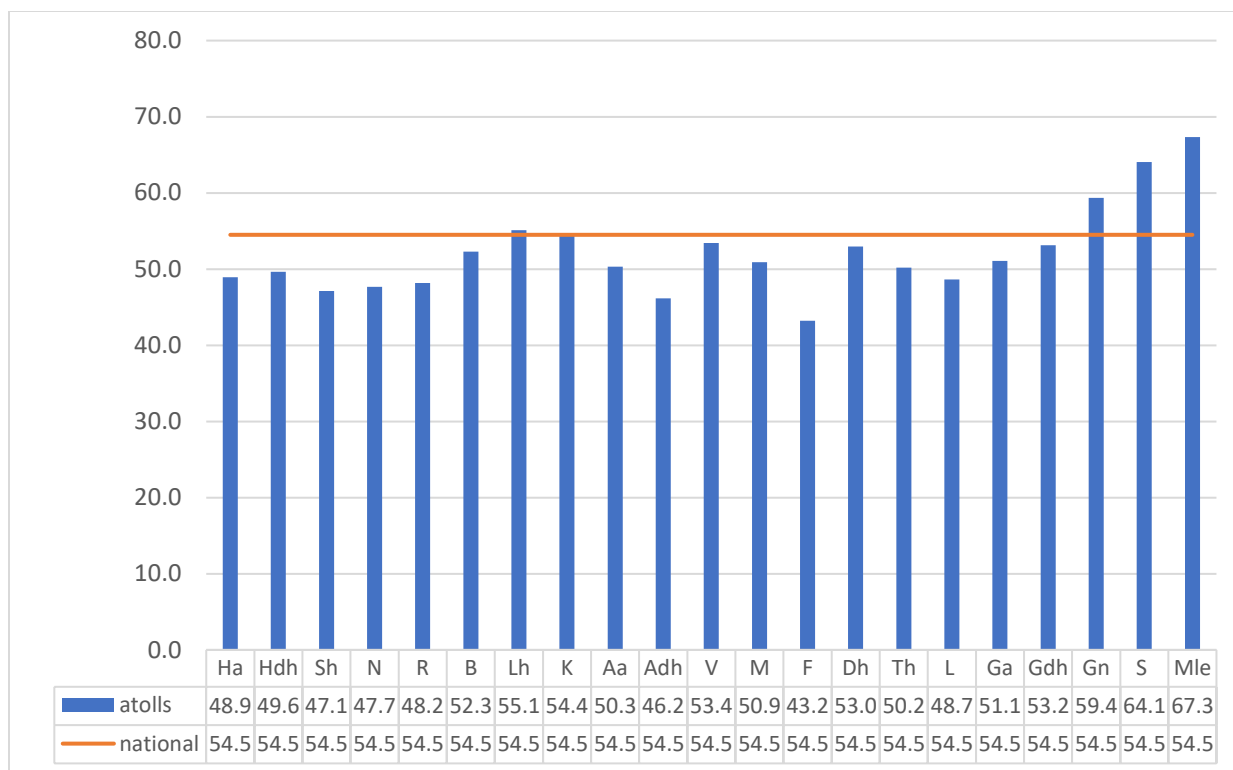


Figure 69 Atoll-wise performance in C2, English_Gr7

As depicted in Figure 69, 4 of the atolls scored equal to or higher than the national average while the remaining 17 scored lower. Male' scored the highest ($M = 67.3$) while the lowest was scored by Faafu atoll ($M = 43.2$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 59. As evident from Table 59, Male', Gnaviyani, and Seenu atoll performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Noonu, Raa, Alif Alif, Alif Dhaalu, Faafu, Thaa, Laamu, and Gaafu Alif atoll performed significantly lower.

Table 50 Comparison of performance in C2, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-3.610	263	0.000	-5.573	-8.614	-2.533
Hdh	-3.674	360	0.000	-4.869	-7.476	-2.263
Sh	-4.579	209	0.000	-7.357	-10.524	-4.190
N	-3.456	156	0.001	-6.836	-10.742	-2.929
R	-4.736	317	0.000	-6.334	-8.966	-3.703
Aa	-2.072	151	0.040	-4.171	-8.149	-0.193
Adh	-4.413	151	0.000	-8.338	-12.071	-4.605
F	-4.623	95	0.000	-11.271	-16.111	-6.431
Th	-2.354	170	0.020	-4.305	-7.915	-0.696

L	-3.758	234	0.000	-5.848	-8.914	-2.782
Ga	-1.988	169	0.048	-3.422	-6.819	-0.024
Gn	2.267	154	0.025	4.855	0.624	9.086
S	5.856	243	0.000	9.571	6.352	12.790
Mle	15.801	890	0.000	12.821	11.229	14.414

Figure 70 shows the performance in C3 (correct sentence formation, punctuation, and sequencing) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

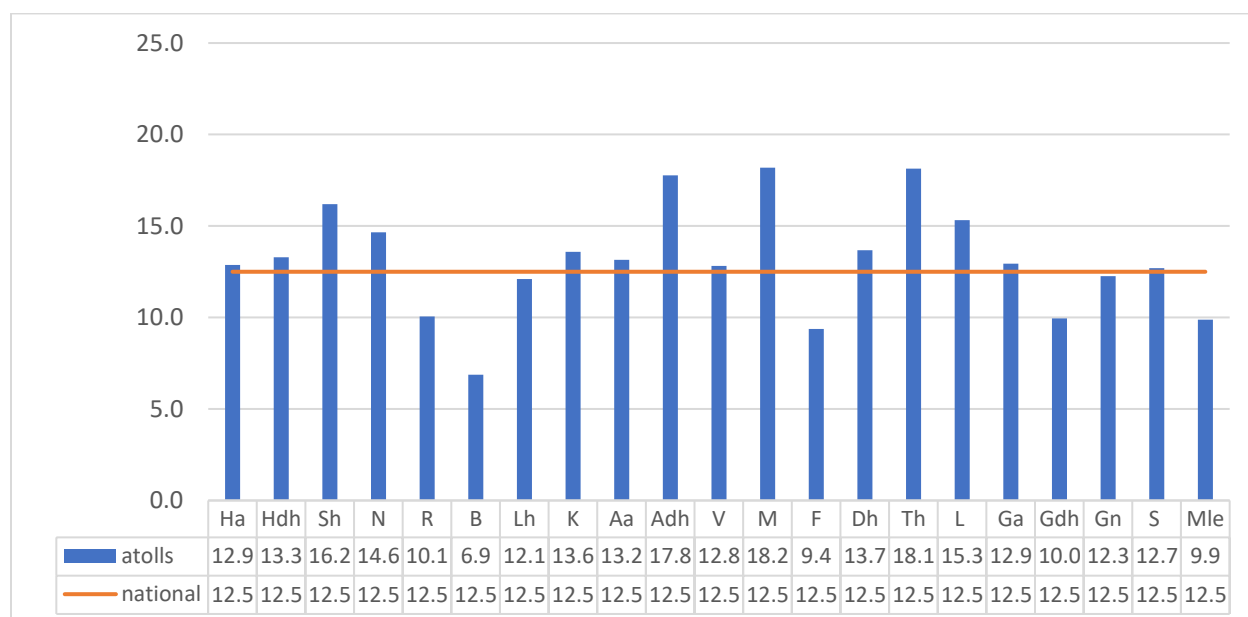


Figure 70 Atoll-wise performance in C3, English_Gr7

As depicted in Figure 70, 14 of the atolls scored equal to or higher than the national average while the remaining 7 scored lower. Meemu atoll scored the highest (M = 18.2) while the lowest was scored by Baa atoll (M = 6.9). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 60. As evident from Table 60, none of the atolls performed significantly higher than the national average while Male' and Baa atoll performed significantly lower.

Table 51 Comparison of performance in C3, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
B	-2.538	130	0.012	-5.630	-10.019	-1.241
Mle	-2.623	890	0.009	-2.623	-4.586	-0.661

Figure 71 shows the performance in C4 (comprehends very simple sentences or a simple paragraph) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

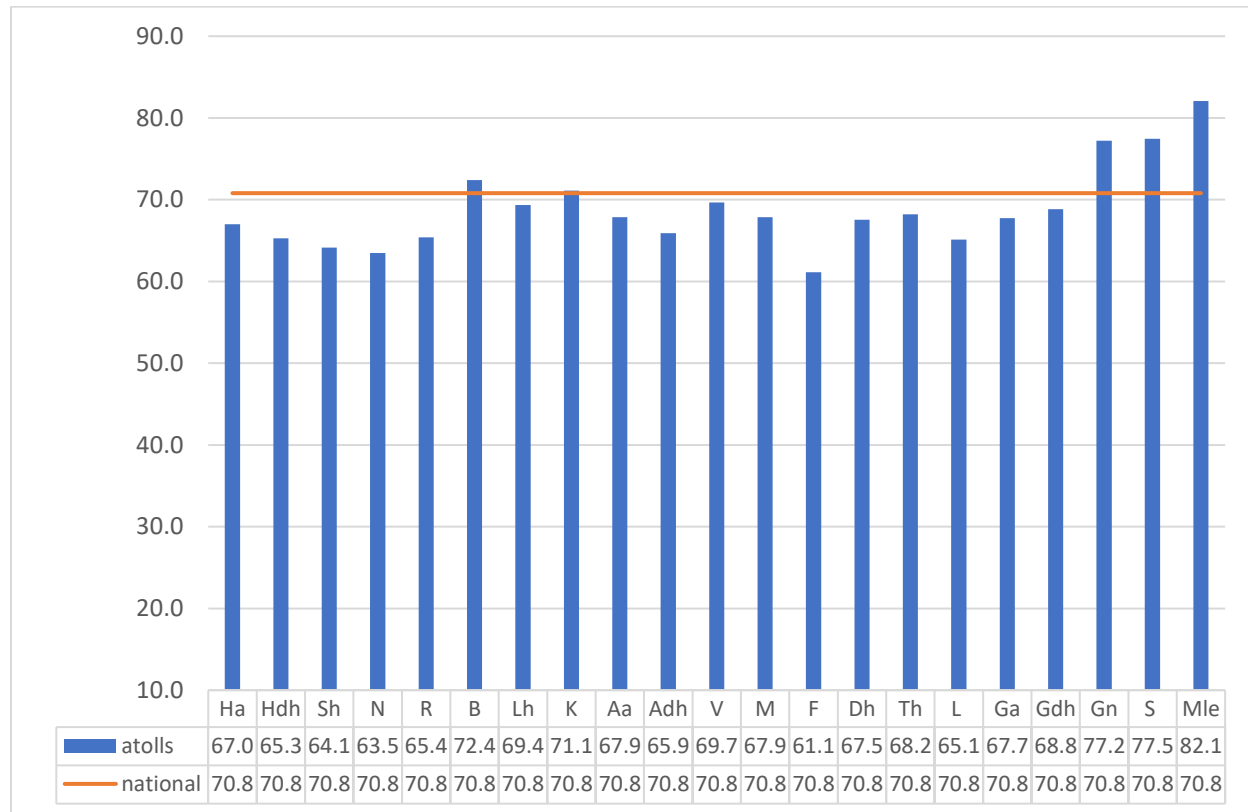


Figure 71 Atoll-wise performance in C4, English_Gr7

As depicted in Figure 71, 5 of the atolls scored equal to or higher than the national average while the remaining 16 scored lower. Male’ scored the highest (M = 82.1) while the lowest was scored by Faafu atoll (M = 61.1). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 61. As evident from Table 61, Gnaviyani and Seenu atoll, and Male’ performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Noonu, Raa, Alif Dhaalu, Faafu and Laamu atoll performed significantly lower.

Table 52 Comparison of performance in C4, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.590	263	0.010	-3.818	-6.719	-0.916
Hdh	-4.003	360	0.000	-5.519	-8.230	-2.807
Sh	-3.808	209	0.000	-6.673	-10.127	-3.219

N	-3.497	156	0.001	-7.318	-11.452	-3.184
R	-3.730	317	0.000	-5.392	-8.235	-2.548
Adh	-2.333	151	0.021	-4.902	-9.052	-0.751
F	-3.874	95	0.000	-9.689	-14.654	-4.725
L	-3.287	234	0.001	-5.694	-9.106	-2.281
Gn	3.339	154	0.001	6.403	2.615	10.192
S	4.671	243	0.000	6.658	3.850	9.466
Mle	18.491	890	0.000	11.261	10.065	12.456

Figure 72 shows the performance in C5 (parts of speech, gender, number, tense, etc) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

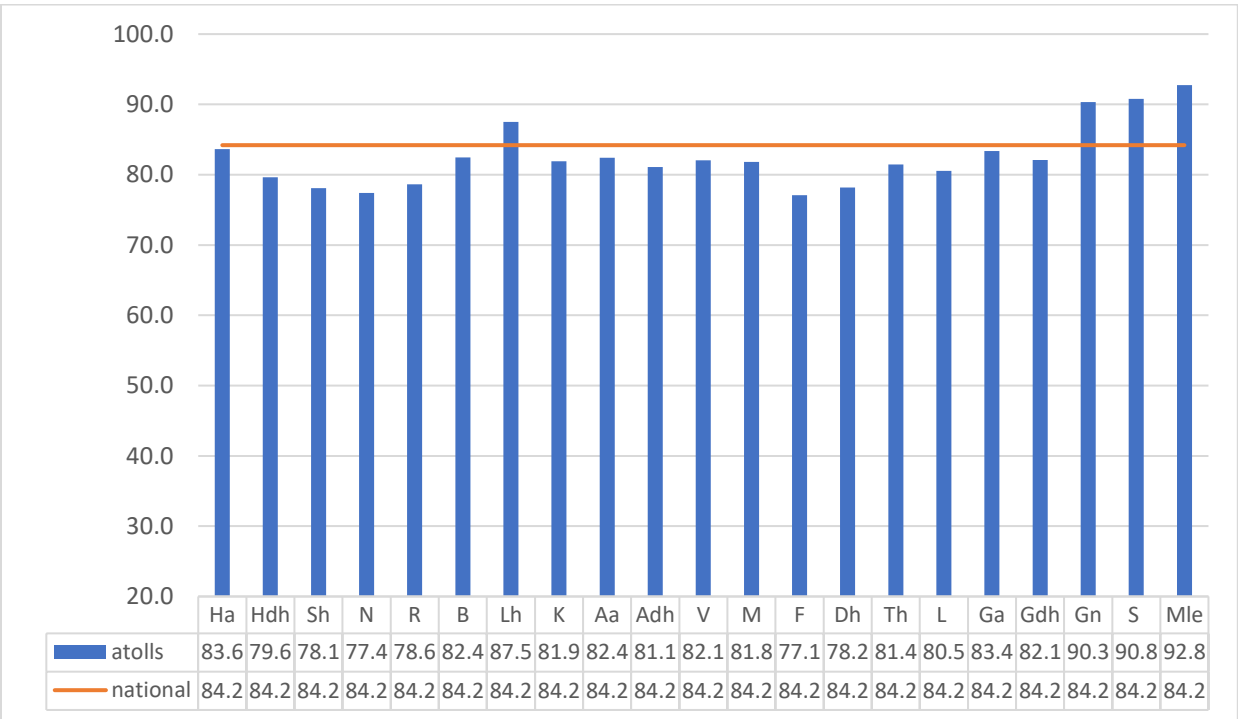


Figure 72 Atoll-wise performance in C5, English_Gr7

As depicted in Figure 72, 4 of the atolls scored equal to or higher than the national average while the remaining 17 scored lower. Male’ scored the highest (M = 92.8) while the lowest was scored by Faafu atoll (M = 77.1). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 62. As evident from Table 62, Male’, Gnaviyani, and Seenu atoll scored significantly higher than the national average while Haa Dhaalu, Shaviyani, Noonu, Raa, Faafu, Dhaalu, and Laamu atoll performed significantly lower.

Table 53 Comparison of performance in C5, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-3.222	360	0.001	-4.560	-7.344	-1.777
Sh	-3.541	209	0.000	-6.105	-9.504	-2.706
N	-3.237	156	0.001	-6.811	-10.969	-2.654
R	-3.816	317	0.000	-5.584	-8.463	-2.705
F	-2.428	95	0.017	-7.117	-12.935	-1.298
Dh	-2.213	94	0.029	-6.042	-11.463	-0.622
L	-2.148	234	0.033	-3.668	-7.032	-0.304
Gn	3.443	154	0.001	6.123	2.610	9.636
S	5.400	243	0.000	6.579	4.179	8.978
Mle	15.825	890	0.000	8.561	7.499	9.623

Figure 73 shows the performance in C6 (understands information presented in authentic material) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

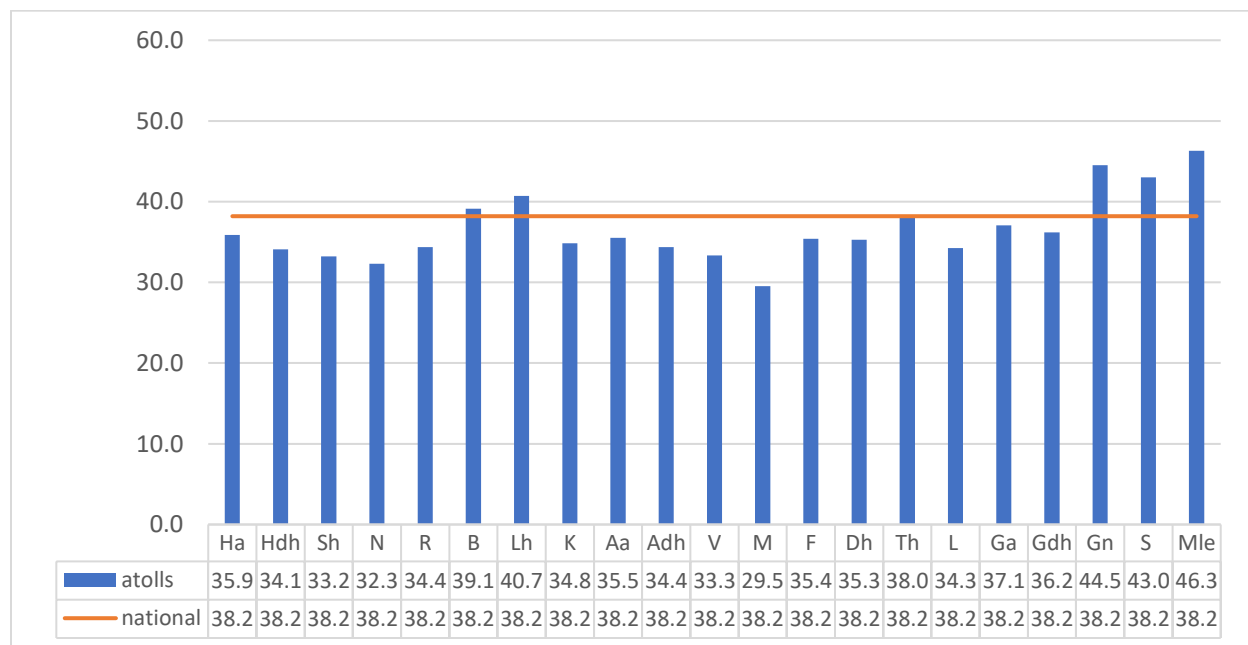


Figure 73 Atoll-wise performance in C6, English_Gr7

As depicted in Figure 73, 5 of the atolls scored equal to or higher than the national average while the remaining 16 scored lower. Male' scored the highest (M = 46.3) while the lowest was scored by Meemu atoll (M = 29.5). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 63. As evident from Table 63, Male', Gnaviyani, and Seenu atoll performed significantly higher than the

national average while Haa Dhaalu, Shaviyani, Noonu, Raa, Meemu, and Laamu atoll performed significantly lower.

Table 54 Comparison of performance in C6, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-3.140	360	0.002	-4.128	-6.714	-1.542
Sh	-2.802	209	0.006	-4.986	-8.493	-1.478
N	-3.219	156	0.002	-5.875	-9.480	-2.270
R	-2.601	317	0.010	-3.845	-6.753	-0.936
M	-2.563	54	0.013	-8.655	-15.424	-1.885
L	-2.318	234	0.021	-3.945	-7.297	-0.592
Gn	2.921	154	0.004	6.316	2.045	10.587
S	2.902	243	0.004	4.833	1.553	8.113
Mle	9.286	890	0.000	8.096	6.385	9.807

Figure 74 shows the performance in C7 (comprehends texts of intermediate difficulty, identify test types and features) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

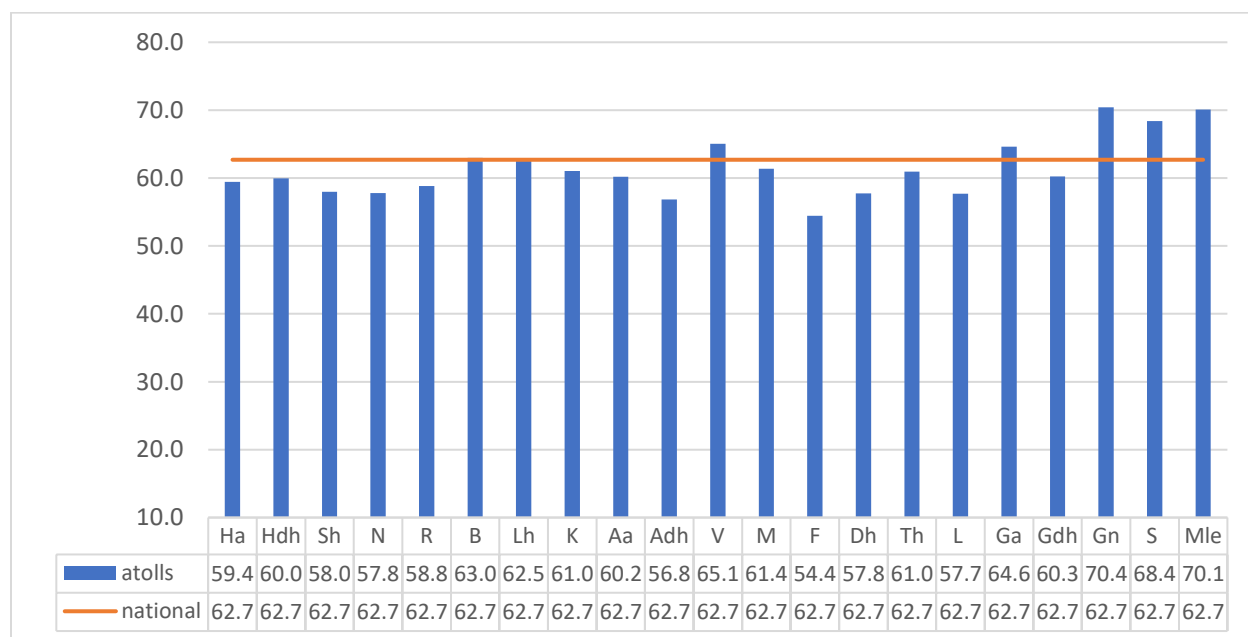


Figure 74 Atoll-wise performance in C7, English_Gr7

As depicted from Figure 74, 6 of the atolls scored equal to or higher than the national average while the remaining 15 scored lower. Gnaviyani atoll scored the highest (M = 70.4) while the lowest was scored by Faafu atoll (M = 54.4). A one sample t-test comparing the mean scores for

the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 64. As evident from Table 64, Male', Gnaviyani, and Seenu atoll performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Noonu, Raa, Alif Dhaalu, Faafu, Dhaalu, and Laamu atoll performed significantly lower.

Table 55 Comparison of performance in C7, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.267	263	0.024	-3.278	-6.125	-0.431
Hdh	-2.080	360	0.038	-2.728	-5.307	-0.149
Sh	-2.812	209	0.005	-4.724	-8.035	-1.413
N	-2.400	156	0.018	-4.897	-8.929	-0.866
R	-2.983	317	0.003	-3.856	-6.399	-1.313
Adh	-2.837	151	0.005	-5.874	-9.965	-1.784
F	-3.020	95	0.003	-8.273	-13.711	-2.835
Dh	-2.011	94	0.047	-4.937	-9.811	-0.063
L	-3.214	234	0.001	-4.987	-8.045	-1.930
Gn	4.120	154	0.000	7.703	4.010	11.397
S	4.124	243	0.000	5.691	2.973	8.410
Mle	11.363	890	0.000	7.390	6.113	8.666

Figure 75 shows the performance in C8 (comprehends complex texts of high difficulty) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 75, 4 of the atolls scored equal to or higher than the national average while the remaining 17 scored lower. Male' scored the highest (M = 62.1) while the lowest was scored by Alif Dhaalu atoll (M = 44.0). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 65. As evident from Table 65, Male', Gnaviyani, and Seenu atoll performed significantly higher than the national average while Haa Alif, Haa Dhaalu, Shaviyani, Noonu, Raa, Alif Alif, Alif Dhaalu, Faafu, Dhaalu, and Laamu atoll performed significantly lower.

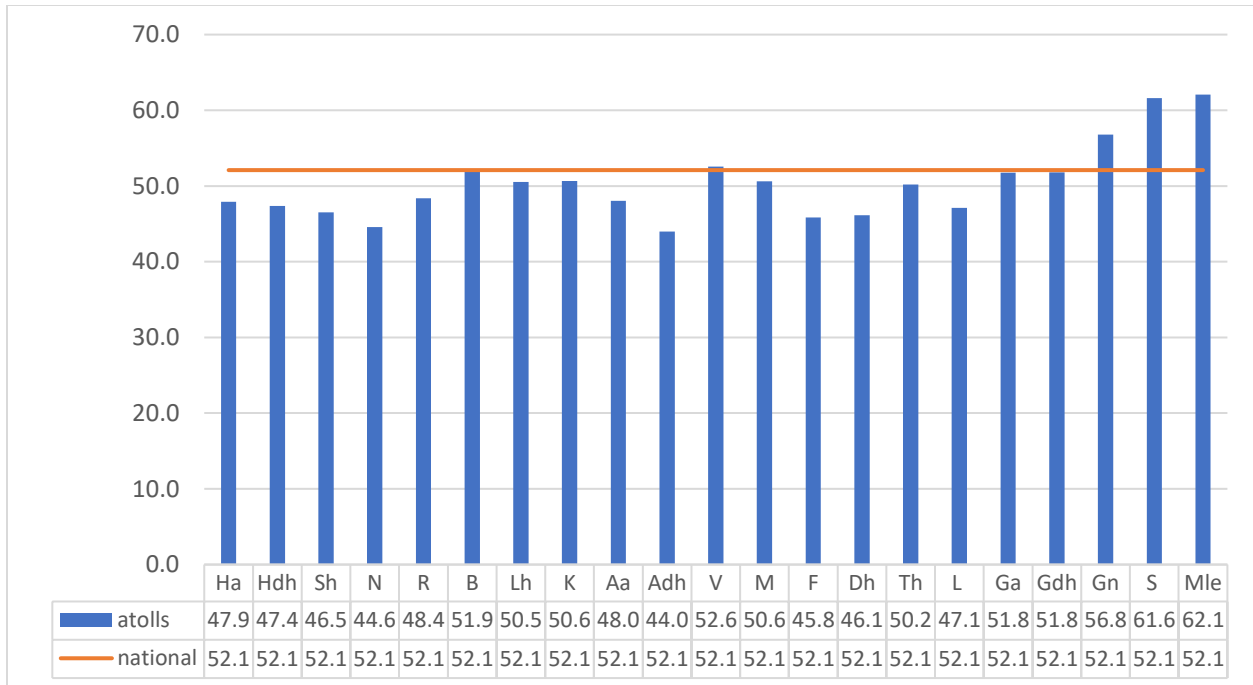


Figure 75 Atoll-wise performance in C8, English_Gr7

Table 56 Comparison of performance in C8, English_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-2.818	263	0.005	-4.183	-7.106	-1.260
Hdh	-3.519	360	0.000	-4.732	-7.376	-2.087
Sh	-3.340	209	0.001	-5.592	-8.892	-2.292
N	-3.882	156	0.000	-7.514	-11.338	-3.690
R	-2.983	317	0.003	-3.725	-6.182	-1.268
Aa	-2.160	151	0.032	-4.074	-7.800	-0.347
Adh	-3.796	151	0.000	-8.130	-12.362	-3.898
F	-2.502	95	0.014	-6.266	-11.239	-1.293
Dh	-2.125	94	0.036	-5.960	-11.529	-0.391
L	-3.360	234	0.001	-5.008	-7.944	-2.071
Gn	2.487	154	0.014	4.674	0.962	8.386
S	6.346	243	0.000	9.512	6.560	12.465
Mle	12.731	890	0.000	9.984	8.445	11.523

GRADE 7 MATHS

1. Response Distribution

A total of 4,388 students from 189 schools across the nation sat the NALO 2021 Maths Gr 7 assessment. However, fifteen of the cases had their gender not entered into the original data sheet. These were treated as missing data in respective analyses. Figure 76 shows the gender-wise breakdown of the candidates while Figure 77 shows the atoll-wise breakdown of the same.

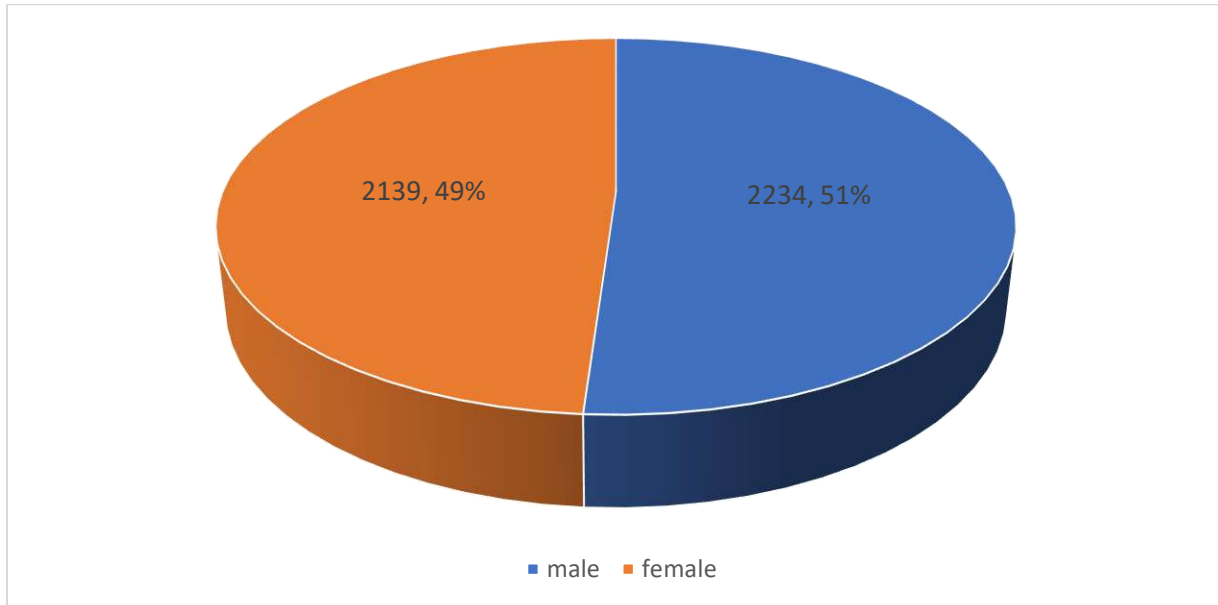


Figure 76 Gender-wise distribution of candidates (Maths_Gr7)

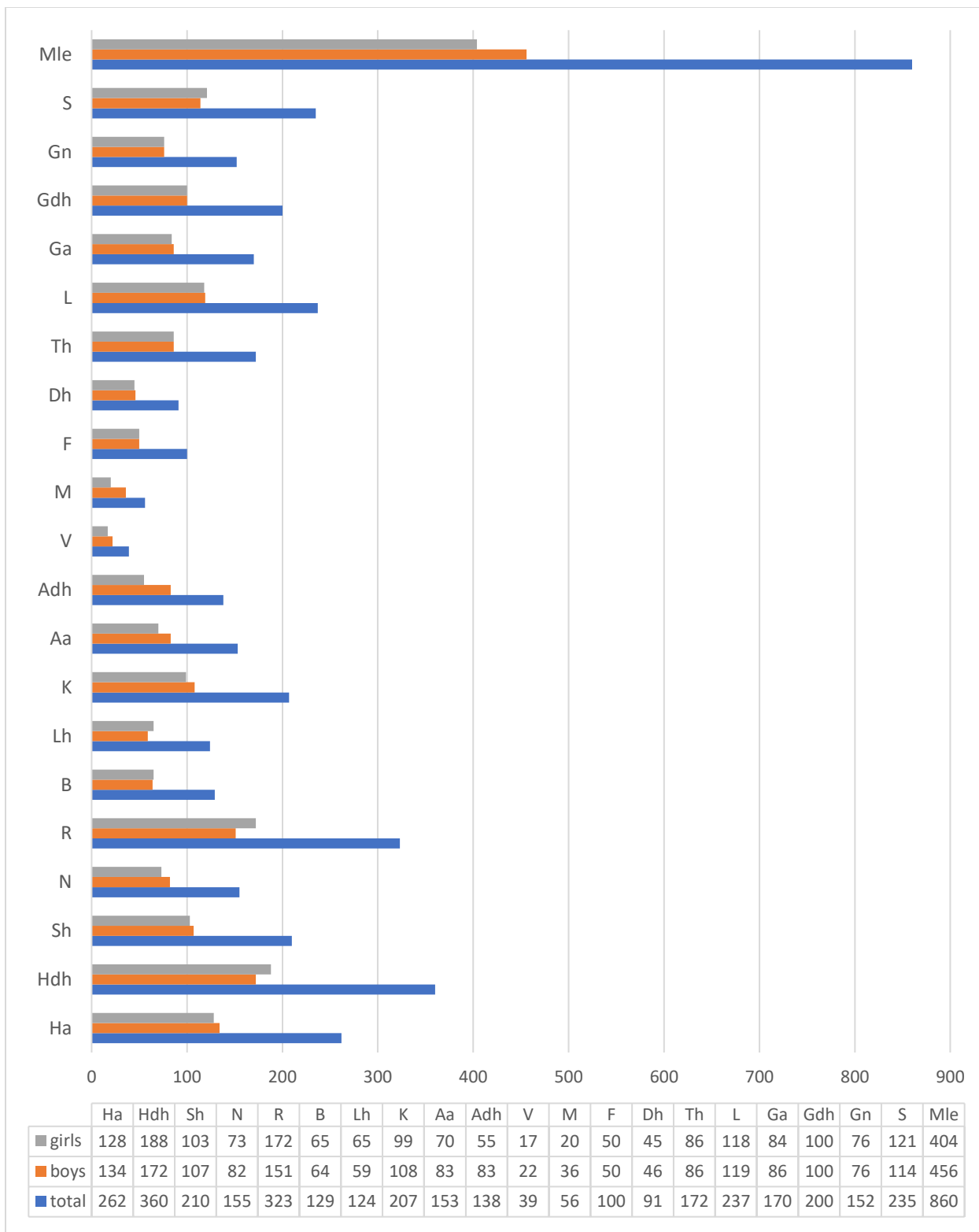


Figure 77 Atoll-wise distribution of candidates (Maths_Gr7)

Table 66 shows the response patterns for the 38 items in Maths Gr 7 assessment of the NALO 2021. As seen from Table 66, question 26 was the most left out question by students. A total of 219 (4.99%) students did not attempt this question. None of the items were answered by all the students. The least skipped item was question 6 which was answered by 99.13% of students.

Table 57 Response patterns for Maths_Gr 7

Item	Correct (N , %)	Wrong (N , %)	Missing (N , %)
C1_1	2939 , 66.98	1395 , 31.79	54 , 1.23
C1_2	3224 , 73.47	1078 , 24.57	86 , 1.96
C1_3	3691 , 84.12	633 , 14.43	64 , 1.46
C1_4	1117 , 25.46	3155 , 71.90	116 , 2.64
C1_5	911 , 20.76	3418 , 77.89	59 , 1.34
C1_6	1737 , 39.59	2613 , 59.55	38 , 0.87
C1_7	968 , 22.06	3370 , 76.80	50 , 1.14
C1_8	1738 , 39.61	2546 , 58.02	104 , 2.37
C1_9	1351 , 30.79	2853 , 65.02	184 , 4.19
C1_10	2835 , 64.61	1481 , 33.75	72 , 1.64
C1_11	2026 , 46.17	2305 , 52.53	57 , 1.30
C1_12	1342 , 30.58	2965 , 67.57	81 , 1.85
C1_13	1173 , 26.73	3103 , 70.72	112 , 2.55
C1_14	1449 , 33.02	2831 , 64.52	108 , 2.46
C6_15	3927 , 89.49	407 , 9.28	54 , 1.23
C2_16	1871 , 42.64	2461 , 56.08	56 , 1.28
C2_17	1650 , 37.60	2685 , 61.19	53 , 1.21
C3_18	3283 , 74.82	974 , 22.20	131 , 2.99
C3_19	2529 , 57.63	1699 , 38.72	160 , 3.65
C3_20	1722 , 39.24	2598 , 59.21	68 , 1.55
C3_21	1456 , 33.18	2815 , 64.15	117 , 2.67
C3_22	1777 , 40.50	2475 , 56.40	136 , 3.10
C3_23	914 , 20.83	3408 , 77.67	66 , 1.50
C8_24	1446 , 32.95	2850 , 64.95	92 , 2.10
C2_25	1134 , 25.84	3090 , 70.42	164 , 3.74
C4_26	1272 , 28.99	2897 , 66.02	219 , 4.99
C4_27	1007 , 22.95	3223 , 73.45	158 , 3.60
C4_28	993 , 22.63	3218 , 73.34	177 , 4.03
C4_29	1219 , 27.78	2971 , 67.71	198 , 4.51
C4_30	2462 , 56.11	1787 , 40.72	139 , 3.17
C5_31	3246 , 73.97	1058 , 24.11	84 , 1.91
C5_32	1626 , 37.06	2689 , 61.28	73 , 1.66
C5_33	803 , 18.30	3509 , 79.97	76 , 1.73
C4_34	1257 , 28.65	2980 , 67.91	151 , 3.44

C8_35	2219 , 50.57	2113 , 48.15	56 , 1.28
C5_36	1669 , 38.04	2550 , 58.11	169 , 3.85
C2_37	712 , 16.23	3582 , 81.63	94 , 2.14
C6_38	1913 , 43.60	2406 , 54.83	69 , 1.57

2. Patterns in student performance

In computing student performance, correct responses were assigned one mark while both wrong and non-responses were assigned zero marks because otherwise, the sample size would significantly decrease, thus affecting the overall findings adversely. Accordingly, Figure 78 shows the national performance of students in Maths_Gr7 in the NALO 2021.

As inferred from Figure 78, the average performance of students in Maths_Gr7 in the NALO 2021 is 41.14 as indicated by the mean score. Moreover, 20.7% of students achieved higher than 75th percentile marks (50.00) while 49.7% of students achieved higher than 50th percentile marks (39.47). These results portray a more or less even distribution of performance in Gr 7 Mathematics across the student sample.

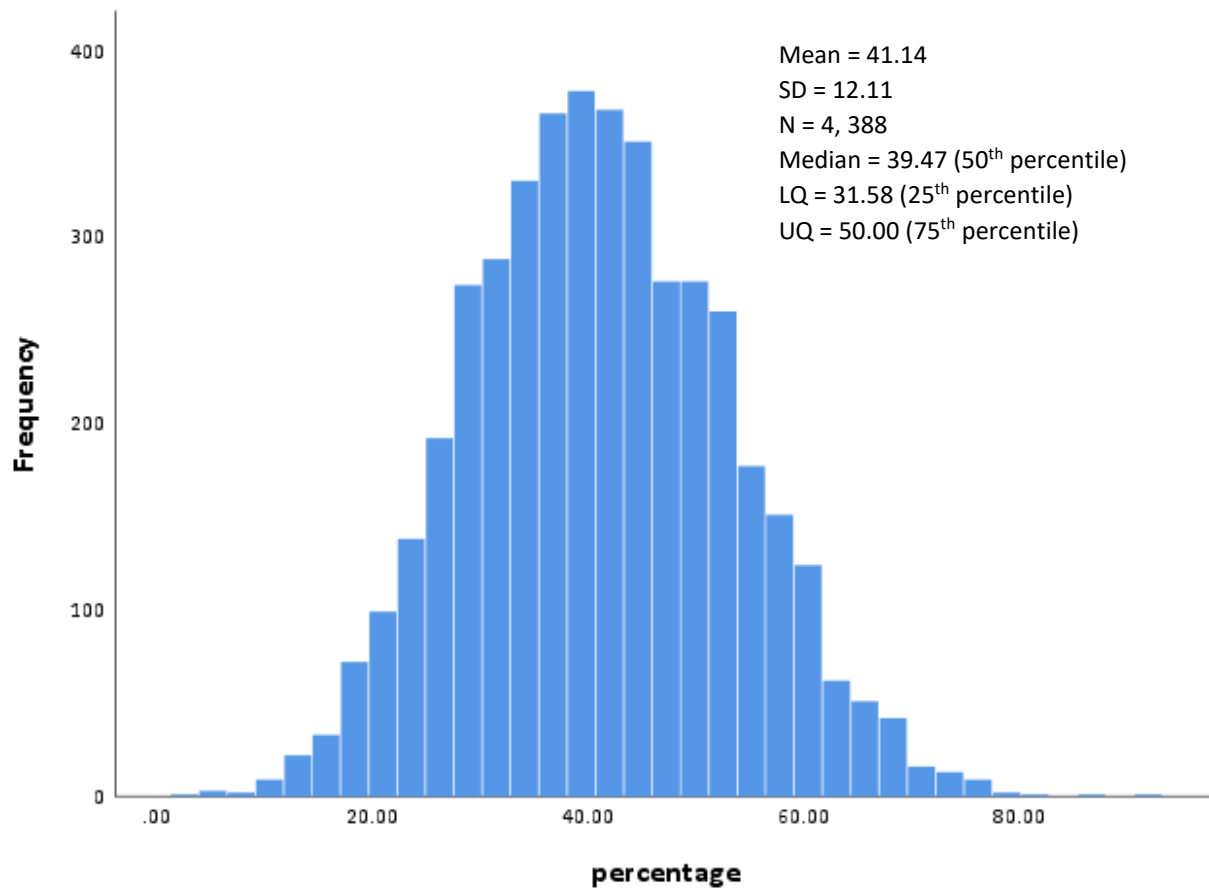


Figure 78 Distribution of student national performance in Maths_Gr7

Figure 79 shows the atoll-wise average performance of students in Maths_Gr7 in the NALO 2021. The national average (41.1) is shown by the line graph while the averages for the atolls and Male' are indicated by the bars. As seen from Figure 79, seven of the cases scored an average mark equal to or above the national average. Among those that scored above the national average, Male' score the highest (M = 44.7). On the other hand, Alif Dhaalu atoll scored the lowest and below the national average with a mean score of 37.2.

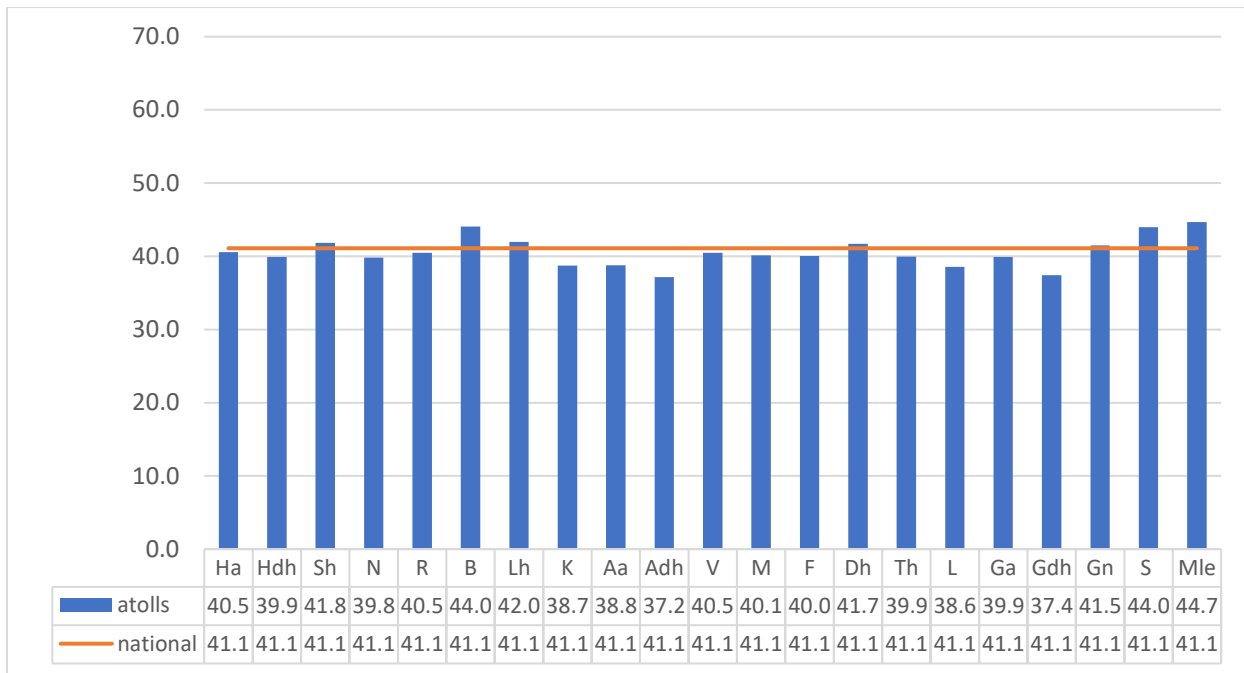


Figure 79 Atoll-wise performance in Maths_Gr7

In addition to the descriptive analysis, further investigations were conducted to test if there is a statistically significant difference between the national average and that of the atolls, using one sample t-test. Table 67 shows the results of the t-tests for all the 20 atolls and Male'. According to the results in Table 67, the difference in student performance is statistically significant for several atolls as indicated in bold. Male', Baa, and Seenu atoll scored a significantly higher mean score while Kaafu, Alif Alif, Alif Dhaalu, Laamu, and Gaafu Dhaalu atoll scored significantly lower mean scores.

Table 58 Comparison of atoll and national performance (Maths_Gr7)

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Ha	-0.778	261	0.437	-0.551	-1.948	0.845
Hdh	-1.825	359	0.069	-1.202	-2.498	0.093
Sh	0.850	209	0.396	0.730	-0.963	2.423
N	-1.313	154	0.191	-1.270	-3.180	0.641

R	-0.861	322	0.390	-0.608	-1.996	0.781
B	2.962	128	0.004	2.943	0.977	4.910
Lh	0.789	123	0.432	0.878	-1.325	3.082
K	-3.000	206	0.003	-2.351	-3.896	-0.806
Aa	-2.458	152	0.015	-2.331	-4.205	-0.457
Adh	-4.354	152	0.000	-3.931	-5.714	-2.147
V	-0.358	38	0.722	-0.615	-4.092	2.861
M	-0.622	55	0.536	-0.969	-4.090	2.152
F	-0.925	99	0.357	-1.074	-3.379	1.231
Dh	0.470	90	0.639	0.601	-1.937	3.139
Th	-1.350	171	0.179	-1.151	-2.835	0.532
L	-3.341	236	0.001	-2.537	-4.033	-1.041
Ga	-1.423	169	0.157	-1.208	-2.885	0.468
Gdh	-4.029	199	0.000	-3.666	-5.460	-1.871
Gn	0.360	151	0.719	0.382	-1.714	2.479
S	3.372	234	0.001	2.898	1.204	4.591
Mle	9.361	859	0.000	3.579	2.829	4.329

Figure 80 shows the atoll-wise as well as national performance of students based on gender in Maths_Gr7. As seen in Figure 80, girls performed better at the national as well as in most of the atolls based on percentage mean scores. The national mean scores of girls and boys are 41.8 and 40.5 respectively. The largest difference is observed in Vaavu atoll where girls performed much better (M = 44.1) than boys (M = 37.7). The least difference is observed in Raa atoll where the mean scores for girls and boys are 40.6 and 40.4 respectively.

Further to these descriptive analyses, independent sample t-test was used to test if there is a statistically significant difference between boys and girls at the national as well as atoll levels. According to the results in Table 68, there is a statistically significant difference in performance between boys and girls at the national level. Similarly, the difference is also statistically significant for Noonu, Gaafu Dhaalu and Seenu atoll. Girls performed better in all these cases.

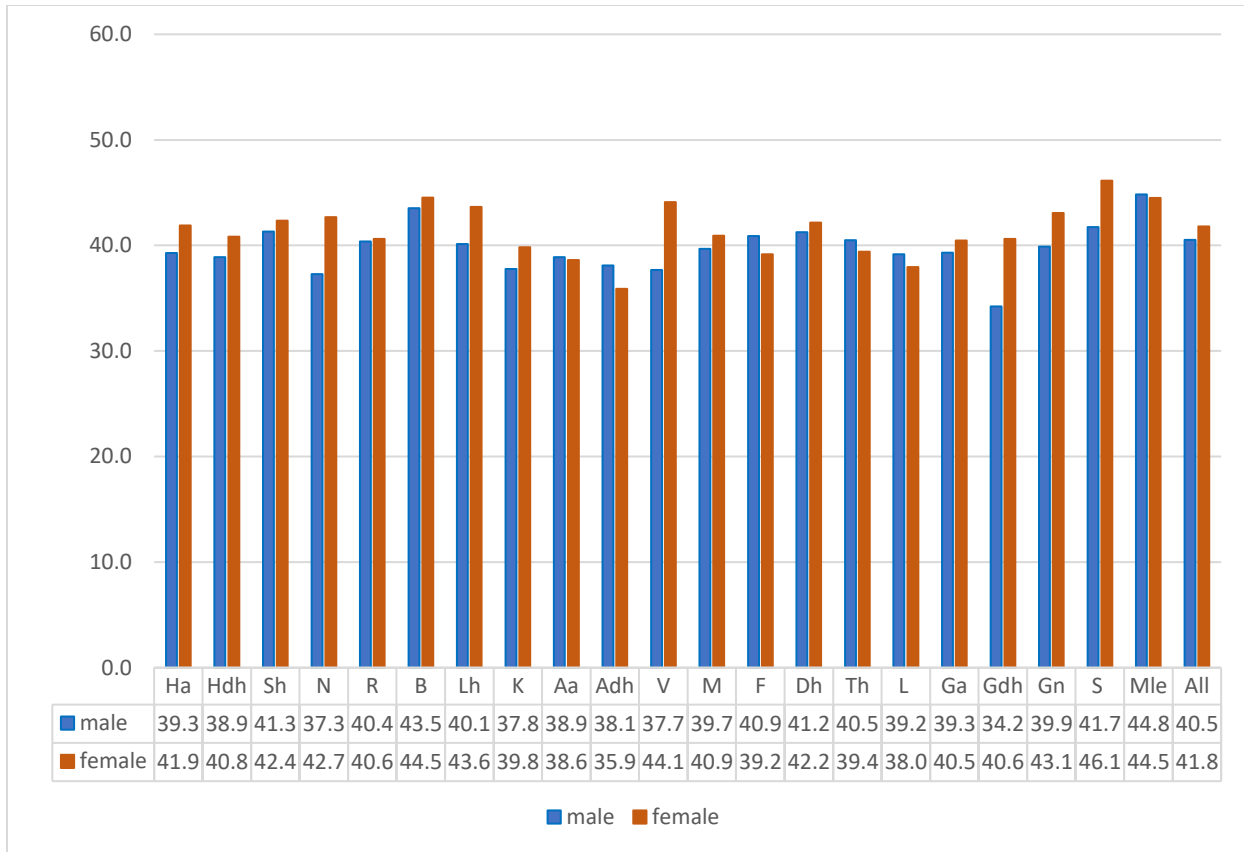


Figure 80 Gender-based, atoll-wise performances in Maths_Gr7

Table 59 Gender-wise comparison of performance at atoll and national level (Maths_Gr7)

Atoll	F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
Ha	0.002	0.965	-1.842	260	0.067	-2.601	1.412	-5.382	0.180
Hdh	0.005	0.942	-1.485	358	0.139	-1.954	1.316	-4.543	0.634
Sh	0.015	0.902	-0.606	208	0.545	-1.043	1.720	-4.434	2.348
N*	5.750	0.018	-2.810	138	0.006	-5.391	1.919	-9.184	-1.597
R	1.974	0.161	-0.172	321	0.864	-0.243	1.416	-3.030	2.544
B	0.226	0.635	-0.497	127	0.620	-0.991	1.994	-4.935	2.954
Lh	1.593	0.209	-1.581	122	0.117	-3.502	2.216	-7.888	0.884
K	1.366	0.244	-1.310	205	0.192	-2.051	1.566	-5.139	1.037
Aa	0.112	0.738	0.154	151	0.878	0.294	1.910	-3.480	4.068
Adh	3.793	0.054	1.128	136	0.261	2.225	1.973	-1.677	6.127
V	0.013	0.908	-1.924	37	0.062	-6.438	3.346	-13.218	0.343
M	0.157	0.693	-0.375	54	0.709	-1.229	3.276	-7.797	5.338
F	0.243	0.623	0.746	98	0.458	1.737	2.328	-2.884	6.357
Dh	0.002	0.968	-0.357	89	0.722	-0.917	2.567	-6.018	4.185
Th	2.601	0.109	0.626	170	0.532	1.070	1.709	-2.303	4.443
L	0.421	0.517	0.794	235	0.428	1.207	1.520	-1.787	4.201

Ga	0.459	0.499	-0.679	168	0.498	-1.155	1.701	-4.514	2.204
Gdh	0.899	0.344	-3.619	198	0.000	-6.395	1.767	-9.880	-2.911
Gn	0.289	0.592	-1.507	150	0.134	-3.185	2.113	-7.361	0.990
S	2.066	0.152	-2.585	233	0.010	-4.393	1.699	-7.741	-1.045
Mle*	6.744	0.010	0.421	858	0.674	0.320	0.761	-1.173	1.813
All	3.115	0.078	-3.530	4371	0.000	-1.292	0.366	-2.009	-0.574

* results for unequal variances reported

3. Skill-wise performance

The 38 items in the NALO 2021 Maths_Gr7 tested a total of seven major Mathematics skills (competencies). These are (i) number sense, C1, (ii) fraction, decimal, ratio, and percentage, C2, (iii) basic shapes, geometry, and visual estimation, C3, (iv) algebra, C4, (v) mensuration, C5, (vi) measurement, data, interpretation, analysis and graphs, C6, and (vii) reasoning and problem solving, C8. Figure 81 shows the performance in these competencies at the national level. According to Figure 81, students performed the best in measurement, data, interpretation, analysis and graphs (M = 66.55) while they performed the worst in fraction, decimal, ratio, and percentage (M = 30.58).

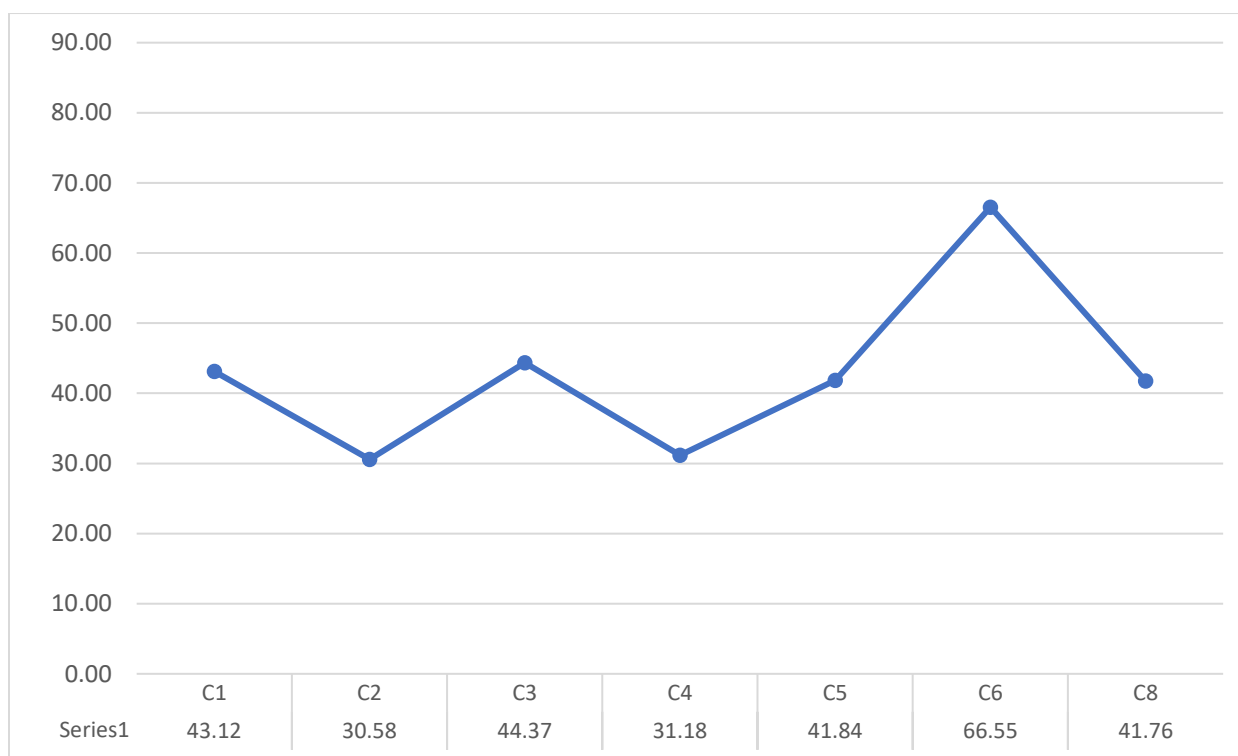


Figure 81 Skill-wise performance in Maths_Gr7

Figure 82 shows the performance in C1 (number sense) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph. As depicted in Figure 82, 10 of the atolls scored equal to or higher than the national average while the

remaining 11 scored lower. Baa atoll scored the highest (M = 47.2) while the lowest was scored by Gaafu Dhaalu atoll (M = 39.0). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 69. As evident from Table 69, Male' performed significantly higher than the national average while Haa Dhaalu, Baa, Laamu and Gaafu Dhaalu atoll performed significantly lower.

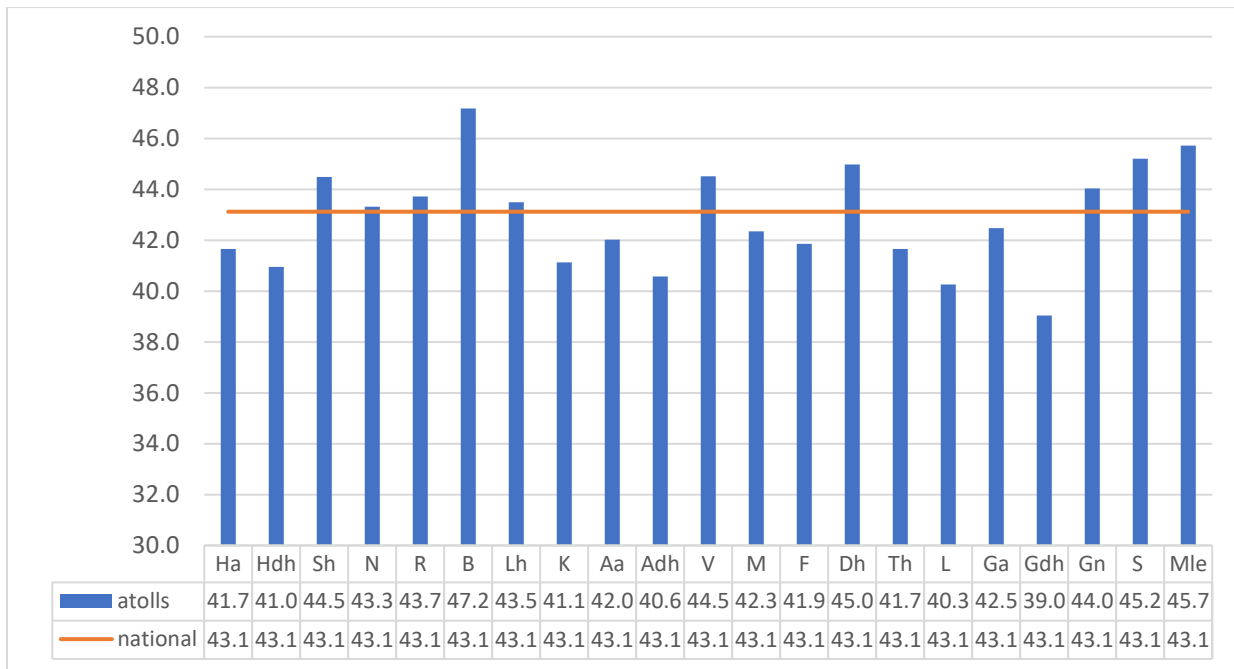


Figure 82 Atoll-wise performance in C1, maths_Gr7

Table 60 Comparison of performance in C1, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-2.287	359	0.023	-2.148	-3.995	-0.301
B	2.709	128	0.008	4.076	1.098	7.053
L	-2.587	236	0.010	-2.835	-4.994	-0.676
Gdh	-3.272	199	0.001	-4.065	-6.514	-1.615
Mle	4.655	859	0.000	2.623	1.517	3.728

Figure 83 shows the performance in C2 (fraction, decimal, ratio and percentage) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

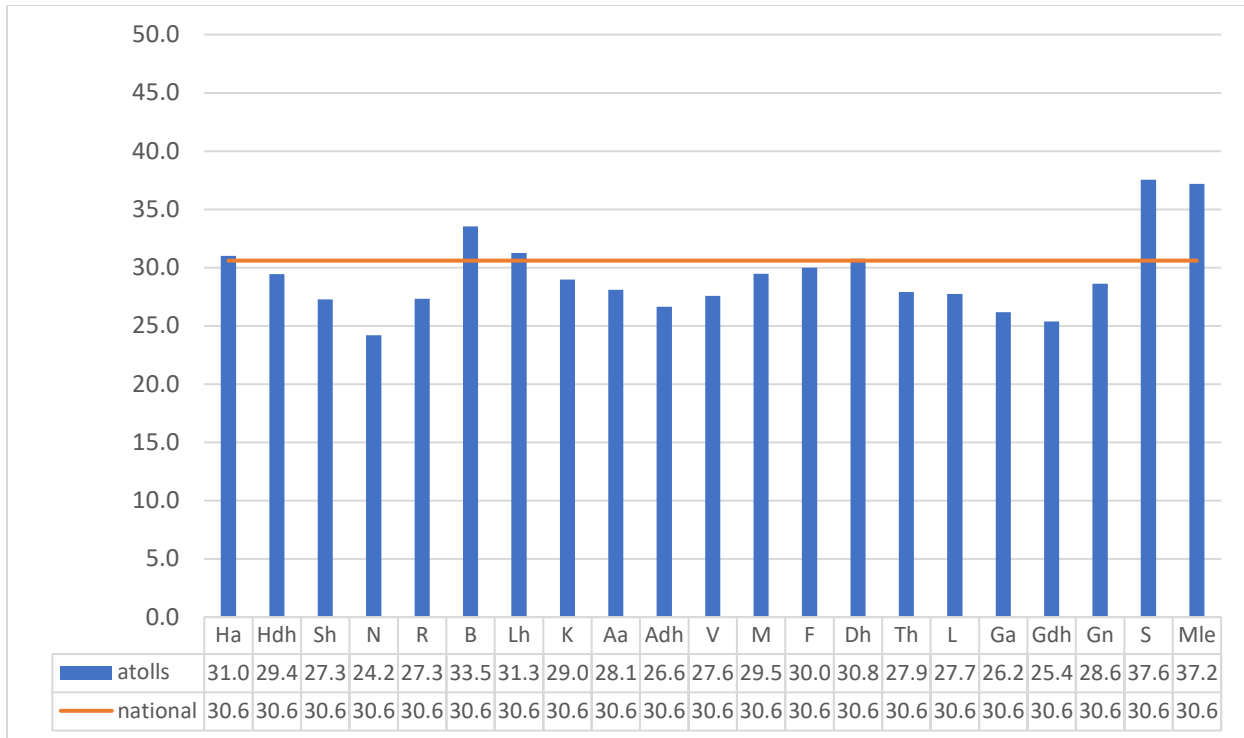


Figure 83 Atoll-wise performance in C2, Maths_Gr7

As depicted in Figure 83, 6 of the atolls scored equal to or higher than the national average while the remaining 15 scored lower. Seenu atoll scored the highest (M = 37.6) while the lowest was scored by Noonu atoll (M = 24.2). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 70. As evident from Table 70, Male’ and Seenu atoll performed significantly higher than the national average while Shaviyani, Noonu, Raa, Laamu, Gaafu Alif, and Gaafu Dhaalu atoll performed significantly lower.

Table 61 Comparison of performance in C2, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Sh	-2.044	209	0.042	-3.338	-6.557	-0.119
N	-3.461	154	0.001	-6.406	-10.063	-2.750
R	-2.405	322	0.017	-3.278	-5.960	-0.596
L	-1.997	236	0.047	-2.857	-5.676	-0.039
Ga	-2.557	169	0.011	-4.424	-7.839	-1.008
Gdh	-3.287	199	0.001	-5.225	-8.360	-2.090
S	4.135	234	0.000	6.953	3.641	10.266
Mle	7.811	859	0.000	6.580	4.927	8.234

Figure 84 shows the performance in C3 (basic shape, geometry, and visual estimation) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

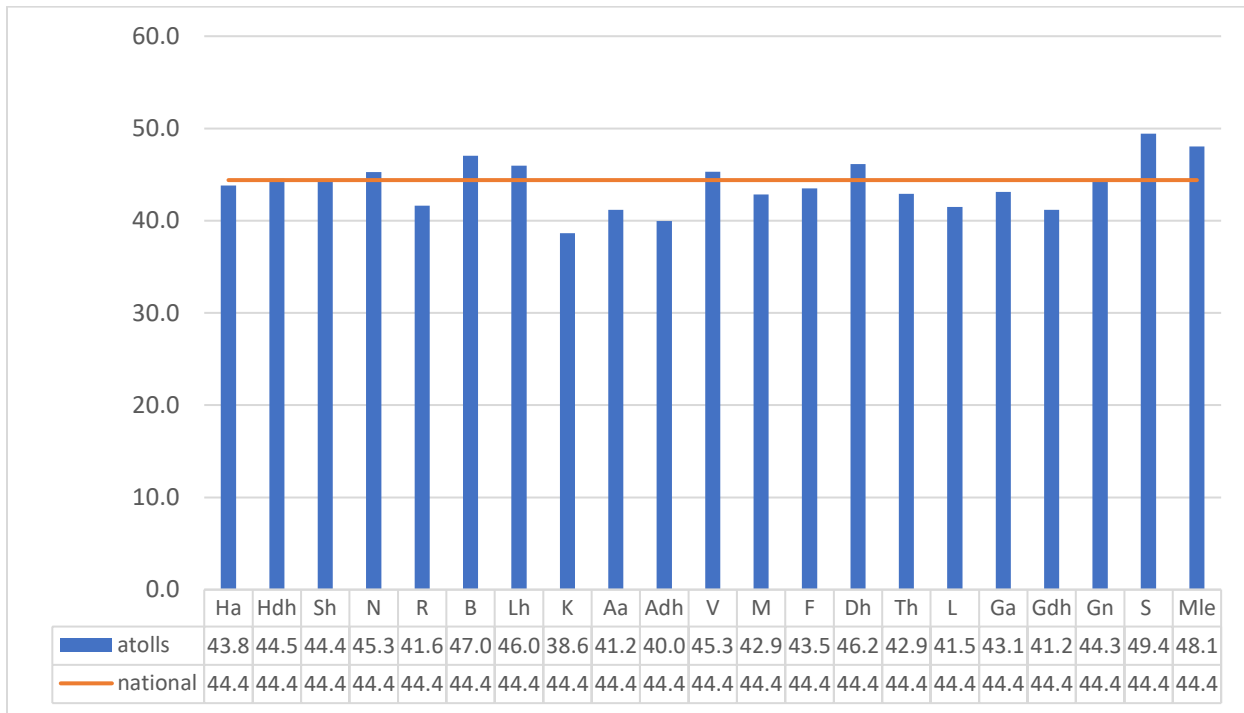


Figure 84 Atoll-wise performance in C3, Maths_Gr7

As depicted in Figure 84, 9 of the atolls scored equal to or higher than the national average while the remaining 12 scored lower. Seenu atoll scored the highest (M = 49.4) while the lowest was scored by Kaafu atoll (M = 38.6). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 71. As evident from Table 71, Male' and Seenu atoll performed significantly higher than the national average while Raa, Kaafu, and Alif Dhaalu atoll performed significantly lower.

Table 62 Comparison of performance in C3, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
R	-1.975	322	0.049	-2.759	-5.508	-0.011
K	-3.661	206	0.000	-5.753	-8.850	-2.655
Adh	-2.079	152	0.039	-4.422	-8.623	-0.220
S	3.267	234	0.001	5.032	1.998	8.067
Mle	4.677	859	0.000	3.662	2.125	5.199

Figure 85 shows the performance in C4 (algebra) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

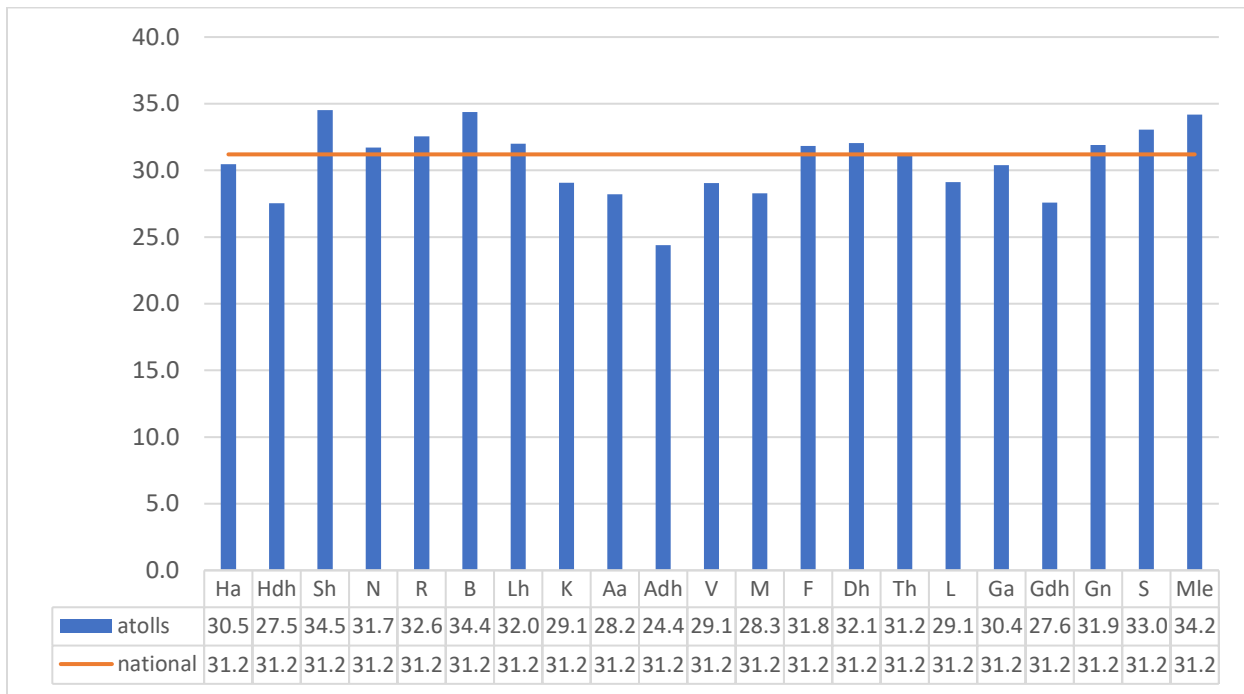


Figure 85 Atoll-wise performance in C4, Maths_Gr7

As depicted in Figure 85, 11 of the atolls scored equal to or higher than the national average while the remaining 10 scored lower. Shaviyani atoll scored the highest ($M = 34.5$) while the lowest was scored by Alif Dhaalu atoll ($M = 24.4$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 72. As evident from Table 72, Male' performed significantly higher than the national average while Haa Dhaalu, Alif Dhaalu, and Gaafu Dhaalu atoll performed significantly lower.

Table 63 Comparison of performance in C4, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	-3.684	359	0.000	-3.653	-5.604	-1.703
Adh	-4.537	152	0.000	-6.799	-9.760	-3.838
Gdh	-2.591	199	0.010	-3.616	-6.369	-0.864
Mle	4.146	859	0.000	2.986	1.572	4.400

Figure 86 shows the performance in C5 (mensuration) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

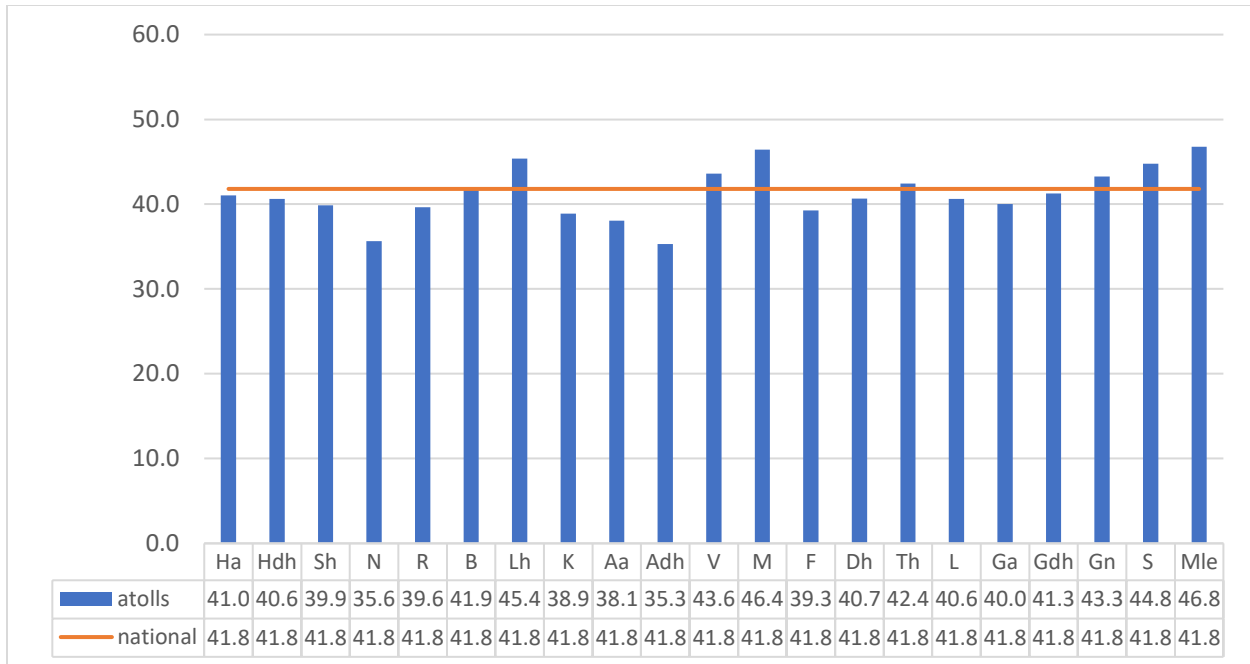


Figure 86 Atoll-wise performance in C5, Maths_Gr7

As depicted in Figure 86, 8 of the atolls scored equal to or higher than the national average while the remaining 13 scored lower. Male' scored the highest (M = 46.8) while the lowest was scored by Alif Dhaalu atoll (M = 35.3). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 73. As evident from Table 73, Male' scored significantly higher than the national average while Noonu and Alif Dhaalu atoll performed significantly lower.

Table 64 Comparison of performance in C5, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
N	-3.363	154	0.001	-6.155	-9.770	-2.540
Adh	-3.251	152	0.001	-6.506	-10.460	-2.552
Mle	6.191	859	0.000	4.973	3.397	6.550

Figure 87 shows the performance in C6 (measurement, data, interpretation, analysis, and graphs) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

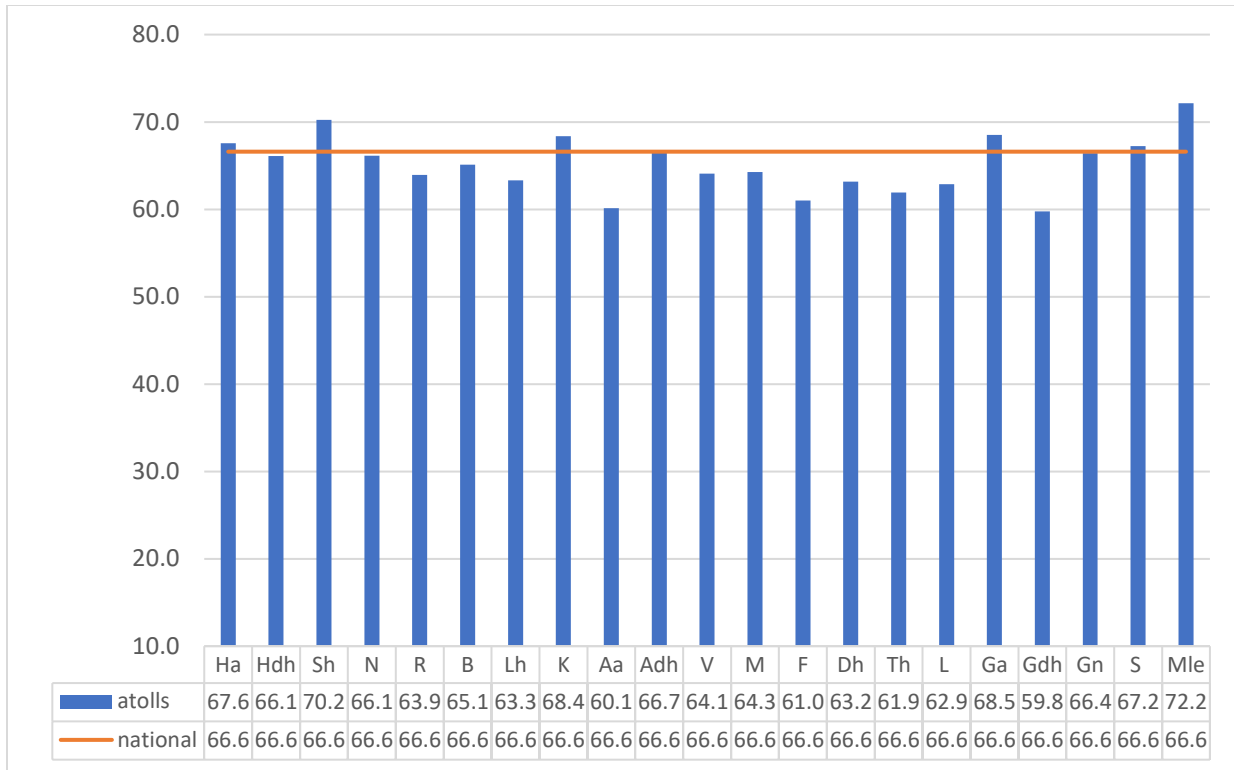


Figure 87 Atoll-wise performance in C6, Maths_Gr7

As depicted in Figure 87, 7 of the atolls scored equal to or higher than the national average while the remaining 14 scored lower. Male' scored the highest (M = 72.2) while the lowest was scored by Gaafu Dhaalu atoll (M = 59.8). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 74. As evident from Table 74, Male' performed significantly higher than the national average while Alif Alif, Thaa, and Gaafu Dhaalu atoll performed significantly lower.

Table 65 Comparison of performance in C6, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Aa	-2.620	152	0.010	-6.469	-11.348	-1.591
Th	-2.086	171	0.038	-4.681	-9.110	-0.252
Gdh	-2.993	199	0.003	-6.850	-11.363	-2.337
Mle	5.641	859	0.000	5.551	3.620	7.483

Figure 88 shows the performance in C8 (reasoning and problem solving) disaggregated into atolls. For ease of comparison, the national average for the competency is displayed by the line graph.

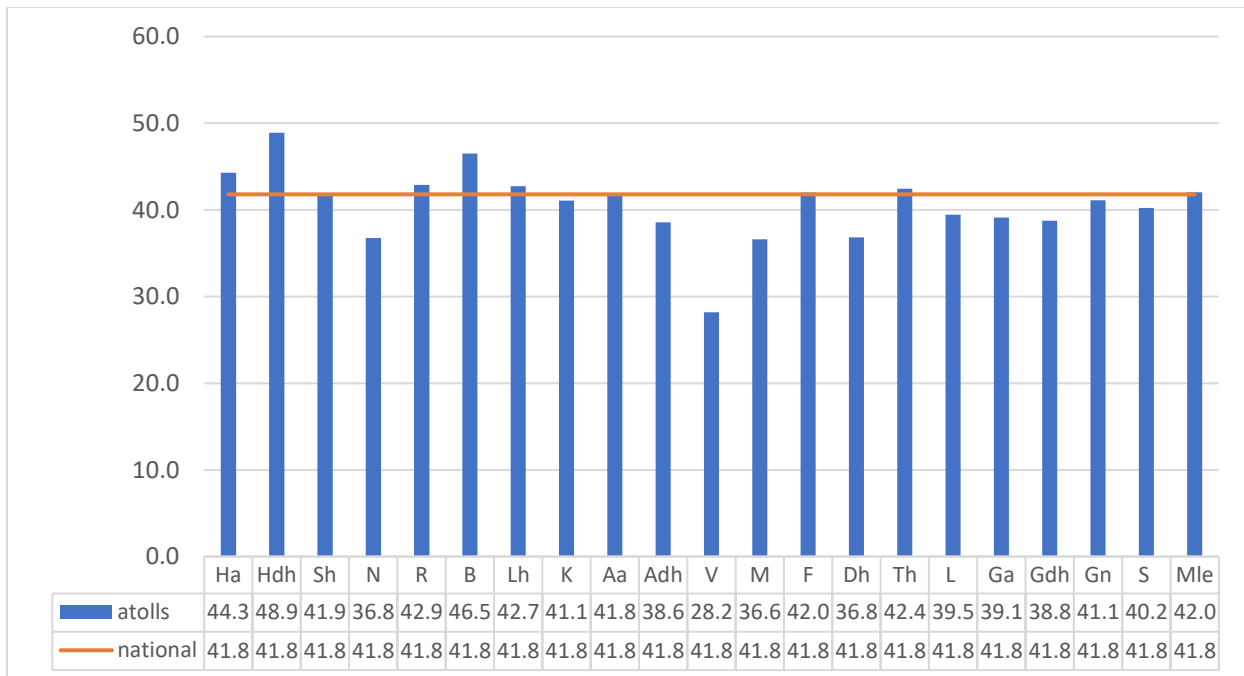


Figure 88 Atoll-wise performance in C8, Maths_Gr7

As depicted in Figure 88, 10 of the atolls scored equal to or higher than the national average while the remaining 11 scored lower. Haa Dhaalu atoll scored the highest ($M = 48.9$) while the lowest was scored by Vaavu atoll ($M = 28.2$). A one sample t-test comparing the mean scores for the competency with that for the nation was carried out to examine if these visible differences are statistically significant. For brevity, only those that are statistically significant are displayed in Table 75. As evident from Table 75, Haa Daalu atoll performed significantly higher than the national average while Vaavu atoll performed significantly lower.

Table 66 Comparison of performance in C8, Maths_Gr7

Atoll	t	df	Sig. (2-tailed)	Mean Difference	95% CI	
					Lower	Upper
Hdh	3.438	359	0.001	7.089	3.034	11.144
V	-2.496	38	0.017	-13.595	-24.622	-2.568

CHAPTER 6

FACTORS ASSOCIATED WITH STUDENT ACHIEVEMENT

GRADE 4 STUDENT SURVEY

In grade 4, a total of 2653 students' responses were analysed with regard to factors influencing student performance in NALO 2021. Findings on response patterns and influencing factors are presented next in that order.

1. Patterns of responses

Figure 89 shows the distribution of responses to items SS7 to SS38. Item SS30 was removed from the analysis altogether as the item was not independent on itself.

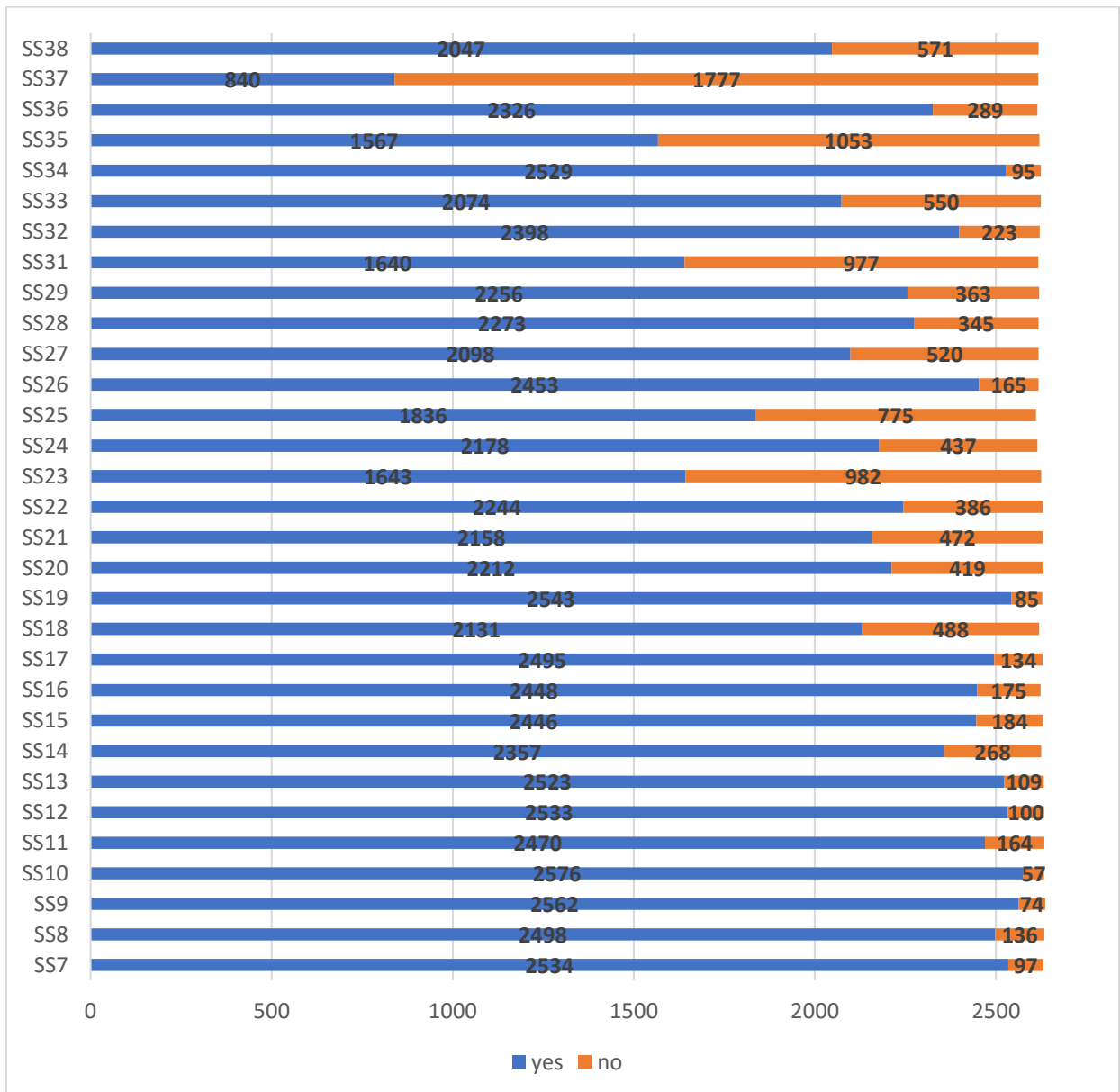


Figure 89 Student responses to items in student survey – grade 4

According to the results in Figure 89, the vast majority of respondents in grade 4 answered yes to almost every item in the student survey. This indicates students generally had a positive perception towards school, teaching, extracurricular activities, safety at school, and learning environment at home. Nevertheless, item SS37 which asked about the use of computers at home for their studies was answered 'no' by majority of participants. This informs that computers were not used at home for purely educational purposes by vast majority of students in grade 4.

Figure 90 shows the percentage of responses to the items of Dhivehi (represented by the inner circle) and English (represented by the outer circle) reading. As evident from the figure, a larger proportion of the students did not read Dhivehi books at all (10.5%) as compared to the corresponding figure for English books (7.6%). Alternatively, a significantly large proportion of students responded that they frequently read English books (39.5%) while the respective figure for Dhivehi books is 16.0%. These results show that students tend to read more English books than Dhivehi.

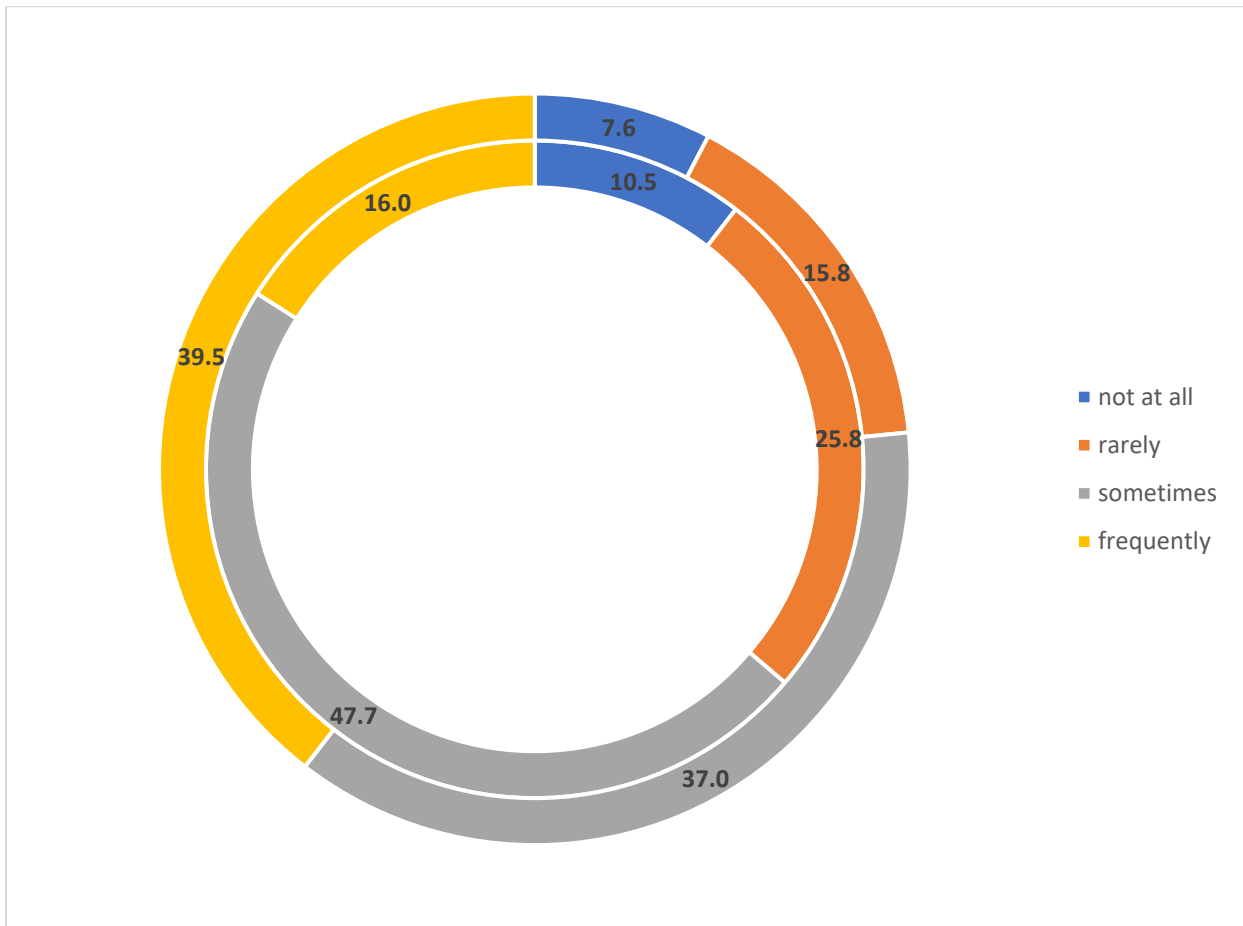


Figure 90 Student engagement in reading – grade 4

Figure 91 shows the percentage of responses to the items on taking tuition in the three selected subjects: Dhivehi (inner circle), English (middle circle), and Mathematics (outer circle). As seen in Figure 91, a significant number of students reported that they did not take any tuition. The percentage of students who did not take tuition in Dhivehi, English, and Mathematics are 49.5%, 40.8%, and 43.1% respectively. On the other hand, a comparable proportion of students reported that they take tuition for 1-3 hours per week. The respective percentages for in Dhivehi, English, and Mathematics are 39.2%, 43.6%, and 41.3%. The respective percentages for 4-6 hrs and more than 6 hrs are 10.9%, 11.0%, 7.8% and 4.7%, 4.6%, 3.5% respectively.

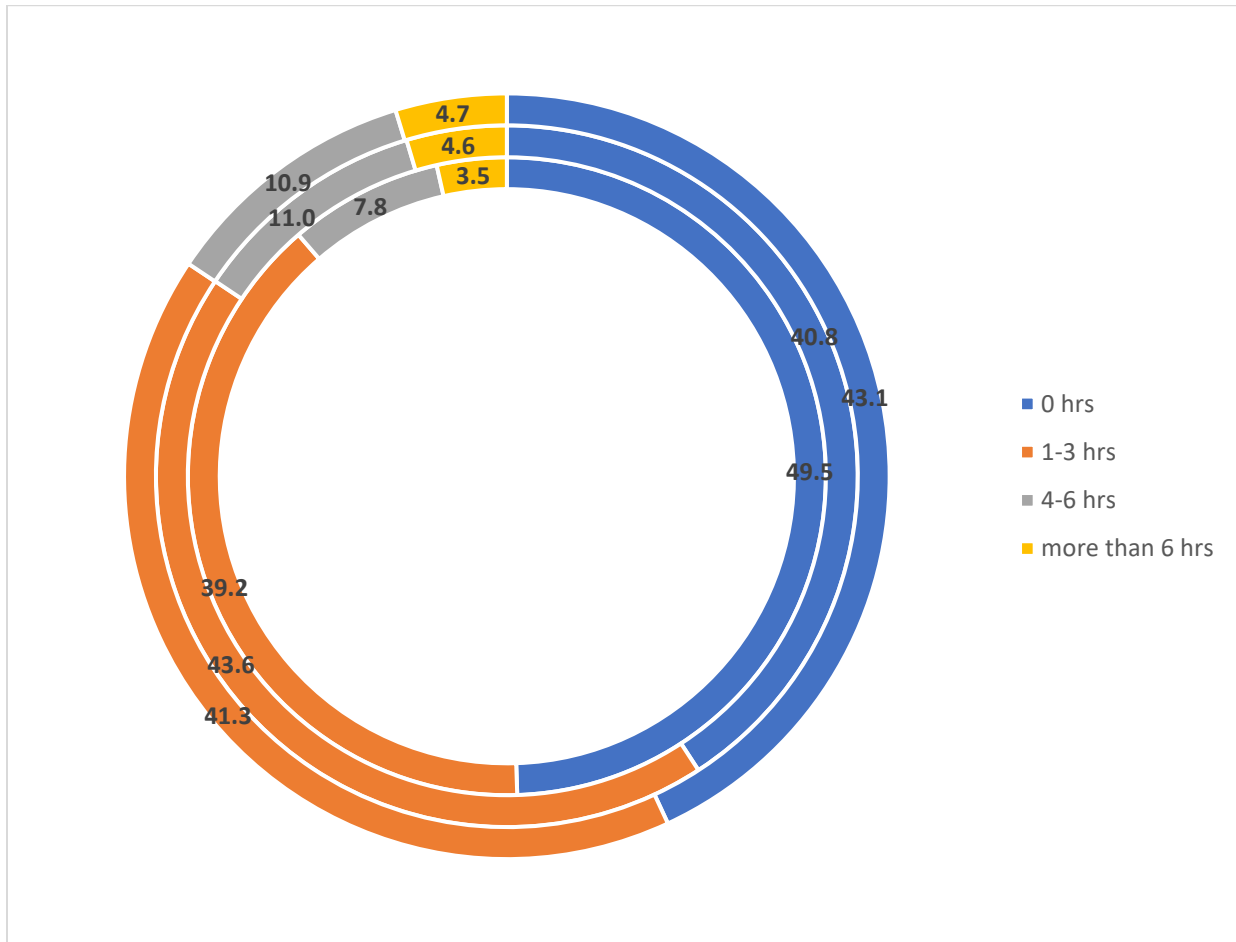


Figure 91 Student engagement in tuition – grade 4

Figure 92 shows distribution of responses, in terms of percentages, to items on parents' involvement in pupils' studies. These items measure the following:

SS44 measures the extent to which parents enquire about activities students get engaged in school.

SS45 measures the extent to which parents discuss about the lessons with students.

SS46 measures the extent to which parents check if homework is done.

SS47 measures the extent to which parent allow time for pupils' studies.

According to the results in Figure 92, students responded largely positive to all four items indicating that parent involvement in students' education is significant. The lowest scoring item is SS45 demonstrating that discussions on specific academic topics is less as compared to parents' involvement in more general sense.

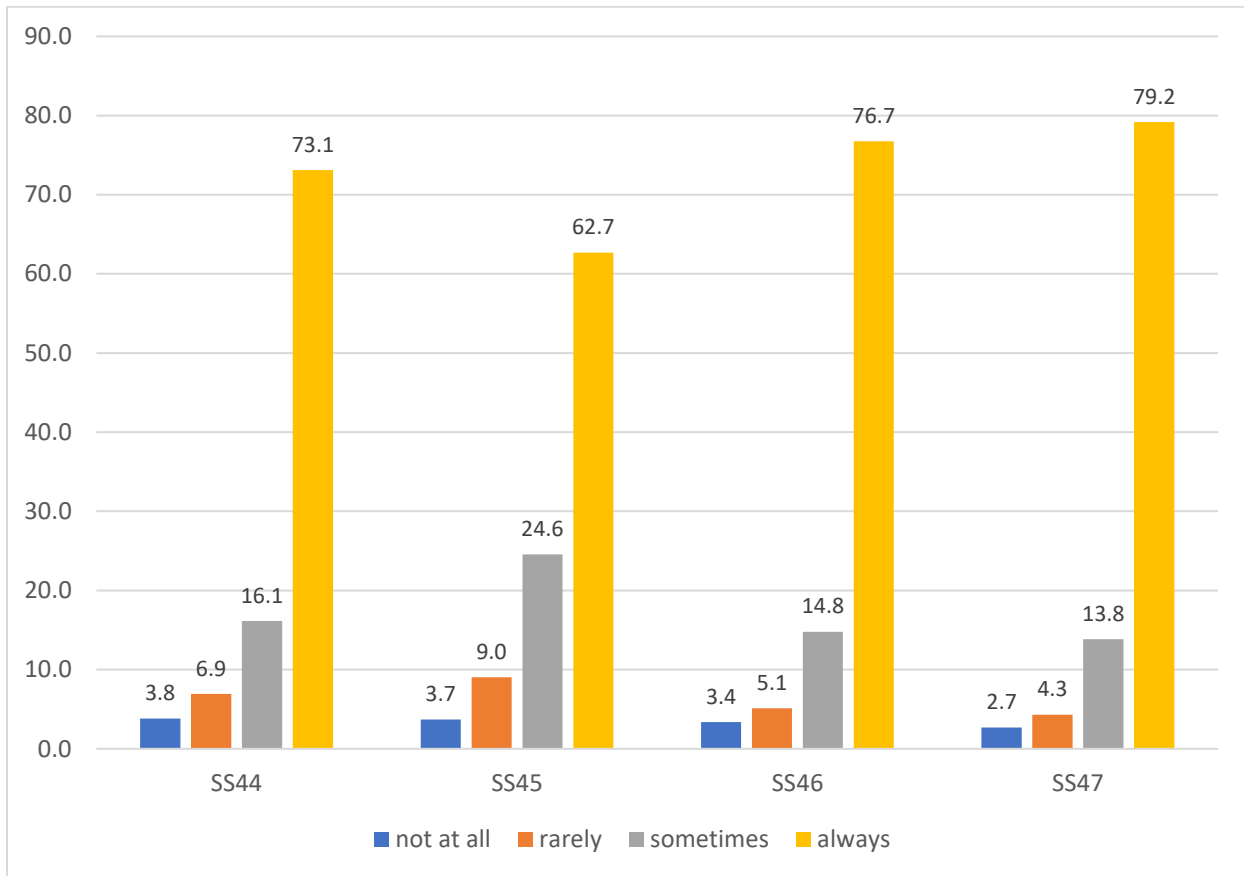


Figure 92 Parent involvement in pupils' studies – grade 4

Figure 93 shows the extent to which students are engaged in sports or physical exercises (items SS48 and SS49) and computer gaming (SS50). As represented by the results in Figure 93, a significant number of students reported that they frequently get engaged in sports or exercises both within and outside school whereby the respective percentages are 36.6% and 35.2%. However, student engagement in such activities outside school is slightly less. It is also noted that students' frequent engagement in computer games is reportedly less (28.7%) than the corresponding figure for physical activities.

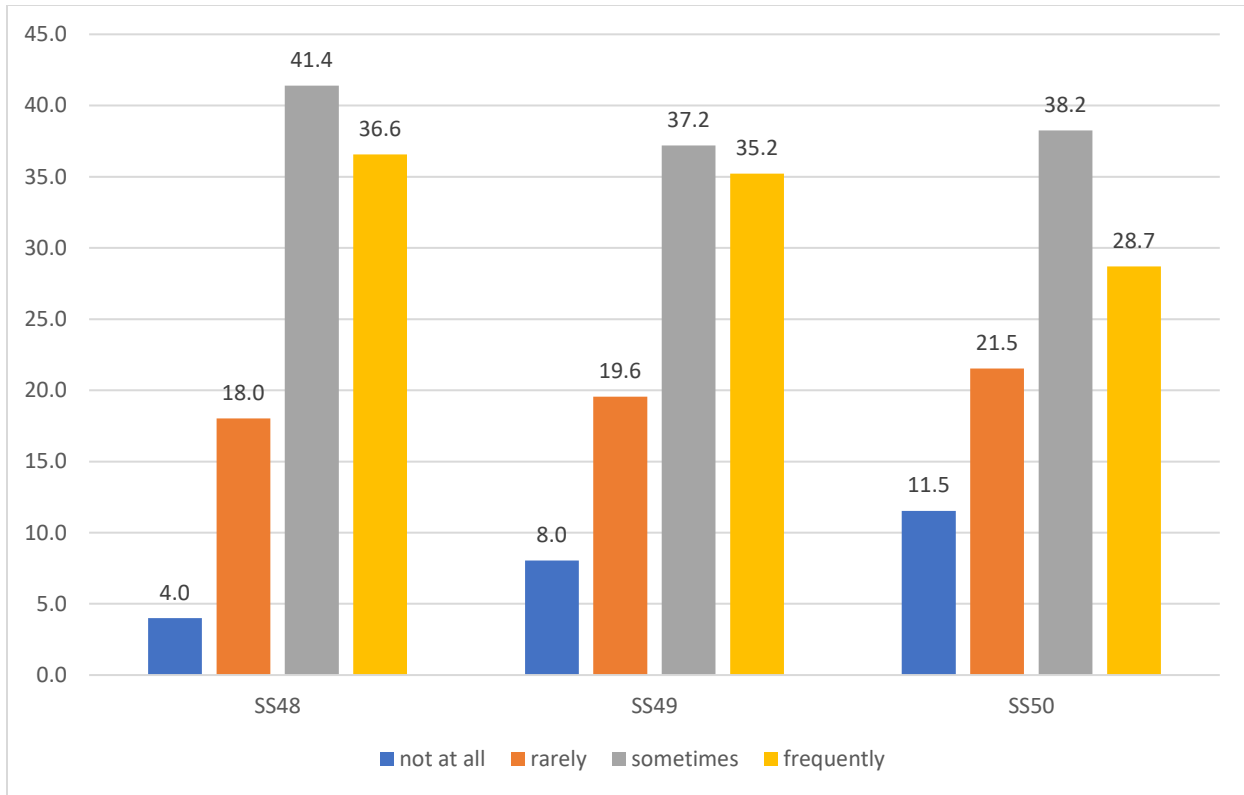


Figure 93 Students involvement in sports, exercise, and computer gaming - Gr4

2. Factors influencing academic results

The items in the student survey were grouped into eight factors in order to make more meaningful interpretations. Presented towards the end of this section are the analyses that were conducted taking these factors into consideration rather than the individual items. Parallel to this, the analyses are conducted and presented separately for each of the three subjects included in NALO 2021.

Prior to investigating the impact of the factors, analysis was first conducted to examine the difference in or association between results and of some individual items. Although these items could not be incorporated as a factor due to measurement inconsistencies, their impact on result is crucial to know. In this regard, independent sample t-test was employed to examine if there is a statistically significant difference in results based on whether students demonstrate initiatives in school activities (item SS20), take part in Dhivehi literary activities (item SS21), and take part in English literary activities (item SS22). Table 76 shows the average marks for the two groups (those who take part and those who do not take part in activities) while Table 77 shows the results of the t-tests for significant differences. The average used in SS20 is the overall average for the three subjects students sat at NALO 2021 whereas the averages for SS21 and SS22 are the averages of Dhivehi and English assessments respectively.

Table 67 Mean scores for grade 4 student groups related to taking initiatives and participation in co-curricular activities

Item		N	Mean	Std. Deviation	Std. Error Mean
SS20 - Taking initiatives	no	348	48.967	15.447	0.828
	yes	1821	52.858	13.278	0.311
SS21 - Taking part in Dhivehi activities	no	365	47.494	18.596	0.973
	yes	1712	56.373	16.743	0.405
SS22 - Taking part in English activities	no	304	47.875	23.214	1.331
	yes	1710	59.814	20.463	0.495

According to the results in Table 76, students who took initiatives scored better ($M = 52.86$) than those who did not take initiatives ($M = 48.97$). Similarly, students who took part in Dhivehi literary activities scored higher in Dhivehi ($M = 56.37$) than those who did not take part in such activities ($M = 47.49$). Also, students who took part in English literary activities scored higher in English ($M = 59.81$) than those who did not take part in such activities ($M = 47.88$).

Further to the descriptive statistics in Table 76, the results in Table 77 reveals that there is a statistically significant difference in overall student achievement between students who took initiatives and those who did not. There is also a statistically significant difference in Dhivehi achievement between those who took part in Dhivehi literary activities and those did not. Likewise, there is a statistically significant difference in English achievement between those who took part in English literary activities and those who did not. These results consistently demonstrate that students who took initiatives and took part in related co-curricular activities perform better in academic subjects as compared to those who do not take part in such activities.

Table 68 Difference in student achievement based on student initiatives and co-curriculum

Item	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
SS20	12.500	0.000	-4.399	450.195	0.000	-3.891	0.885	-5.630	-2.153
SS21	8.102	0.004	-8.422	497.529	0.000	-8.878	1.054	-10.949	-6.807
SS22	19.417	0.000	-8.406	391.170	0.000	-11.940	1.420	-14.732	-9.147

In line with the preceding analyses, item-based analyses were also conducted for items SS39 and SS40. These items measure the amount of reading Dhivehi and English books respectively. A bivariate correlation was performed in order to examine if there is a significant relationship between reading and student achievement. Accordingly, the results indicated that there is a statistically significant correlation between reading Dhivehi books and Dhivehi performance in NALO 2021, $r(2065) = .202$. Likewise, there is also a statistically significant correlation between reading English books and English performance in NALO 2021, $r(2002) = .340$. Despite being

significant, the effect size of these relationships is small and moderate respectively (Cohen, 1988).

After presenting the results for the individual items, next are the results of the multiple regression analyses that were carried out to investigate the impact of the selected factors on student outcome. A total of eight factors composed of multiple as well as single items were engaged in the analyses. These factors are; (i) perception about school – items SS7 to SS11, (ii) perception on teaching – items SS12 to SS18, (iii) safety at school – items SS23 to SS33, (iv) learning environment at home – items SS34 to SS38, (v) tuition – SS41 to SS43, (vi) parents’ involvement – SS44 to SS47, (vii) physical activity – SS48 to SS49, and (viii) gaming – SS50. As the items for tuition measured the number of hours for tuition on specific subjects, this factor was considered a single-item factor and was analysed in association with the respective subjective. Prior to reading the results, all the necessary tests were employed in assessing if the data complies with statistical assumptions associated with regression.

Table 78 shows the results of the regression analysis conducted for student performance in the NALO 2021 Dhivehi Gr4. According to the results, there is a statistically significant positive impact of F1 (perception about school), F2 (perception on teaching), F3 (safety at school), F5 (tuition), and F6 (parents’ involvement) on students’ Dhivehi achievement. On the other hand, there is a statistically significant negative impact of gaming on students’ Dhivehi achievement. The entire model, however, explains only 9.10% of variance in Dhivehi achievement.

Table 69 Impact of selected variables on student achievement in NALO 2021 Dhivehi_Gr4

Factors	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	28.887	4.218		6.849	0.000		
F1	1.843	0.792	0.060	2.327	0.020	0.731	1.368
F2	1.153	0.529	0.056	2.178	0.029	0.727	1.376
F3	0.941	0.188	0.119	4.997	0.000	0.862	1.161
F4	-0.591	0.381	-0.037	-1.553	0.121	0.876	1.142
F5	-2.095	0.507	-0.093	-4.135	0.000	0.958	1.044
F6	1.173	0.188	0.151	6.232	0.000	0.829	1.207
F7	-0.447	0.263	-0.039	-1.703	0.089	0.953	1.050
F8	-1.809	0.399	-0.102	-4.536	0.000	0.973	1.028

F (8, 1873) = 23.455, R-square = 0.091

Table 79 shows the results of the regression analysis conducted for student performance in the NALO 2021 English Gr4. According to the results, there is a statistically significant positive impact of F3 (safety at school) and F4 (learning environment at home) on students’ English achievement. On the other hand, there is a statistically significant negative impact of F5 (Tuition) and F7 (physical activity) on students’ English achievement. The entire model, however, explains only 6.20% of variance in English achievement.

Table 70 Impact of selected variables on student achievement in NALO 2021 English_Gr4

Factors	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	48.500	5.316		9.124	0.000		
F1	-1.222	1.026	-0.032	-1.191	0.234	0.715	1.398
F2	0.545	0.678	0.022	0.804	0.422	0.712	1.405
F3	1.507	0.239	0.154	6.297	0.000	0.872	1.146
F4	2.357	0.481	0.119	4.902	0.000	0.885	1.130
F5	-2.471	0.610	-0.094	-4.051	0.000	0.956	1.046
F6	0.262	0.239	0.027	1.097	0.273	0.834	1.198
F7	-1.326	0.336	-0.092	-3.944	0.000	0.947	1.056
F8	0.240	0.510	0.011	0.472	0.637	0.972	1.028

F (8, 1816) = 14.846, R-square = 0.062

Table 80 shows the results of the regression analysis conducted for student performance in the NALO 2021 Mathematics Gr4. According to the results, there is a statistically significant positive impact of F2 (perception on teaching) and F3 (safety at school). The entire model explains only 1.10% of variance in Maths achievement.

Table 71 Impact of selected variables on student achievement in NALO 2021 Maths_Gr4

Factors	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	37.903	4.385		8.643	0.000		
F1	-0.422	0.846	-0.014	-0.499	0.618	0.702	1.424
F2	1.186	0.553	0.060	2.143	0.032	0.709	1.410
F3	0.508	0.195	0.065	2.601	0.009	0.874	1.144
F4	-0.240	0.390	-0.015	-0.616	0.538	0.886	1.128
F5	0.149	0.496	0.007	0.300	0.764	0.954	1.049
F6	-0.060	0.194	-0.008	-0.307	0.759	0.826	1.211
F7	-0.495	0.274	-0.044	-1.808	0.071	0.945	1.059
F8	0.758	0.411	0.044	1.844	0.065	0.965	1.036

F (8, 1814) = 2.460, R-square = 0.011

Overall, the preceding results demonstrated no substantial contribution of the factors to student achievement. Despite statistically significant impact of some of the factors, the models depict trivial influence on student achievement. This could mean that there are other more influential factors that could possibly affect (but not included in the model) student achievement in the given context. The inconsistencies in the results and the little variance explained could also be due to the tool and method used in data collection for student survey.

GRADE 7 STUDENT SURVEY

In grade 7, a total of 2880 student responses were analysed with regard to factors influencing student performance in NALO 2021. Findings on response patterns and influencing factors are presented next in that order.

1. Patterns of responses

Figure 94 shows the distribution of responses to items SS7 to SS38. Item SS30 was removed from the analysis altogether as the item was not independent on itself.

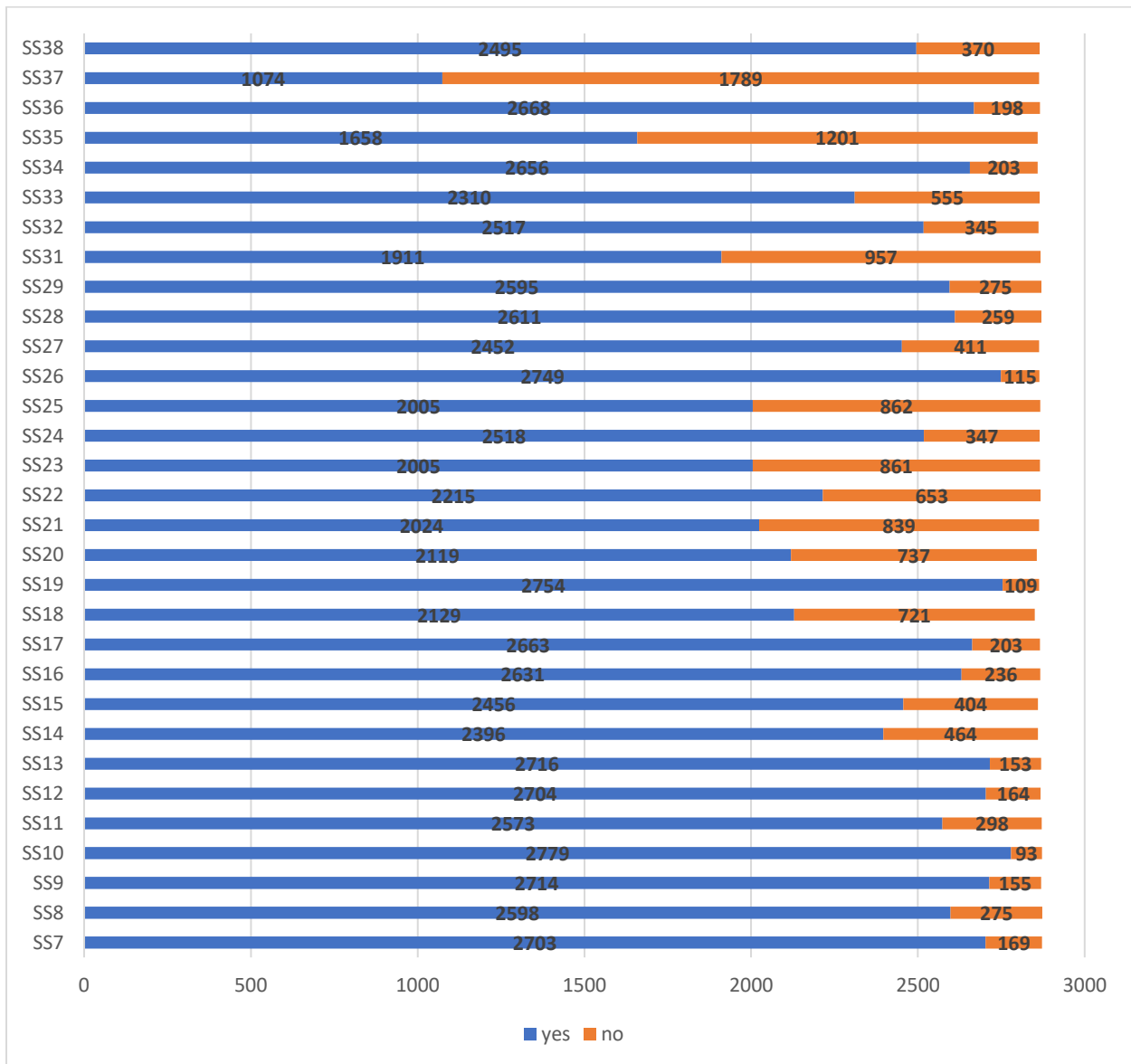


Figure 94 Student responses to items in student survey – grade 7

According to the results in Figure 94, the vast majority of respondents in grade 7 answered yes to almost every item in the student survey. This indicates that students generally have a positive perception towards their school, teaching, safety at school, co-curricular activities, and learning environment at home. Nonetheless, item SS37 which asked about the use of computers at home for their studies was answered 'no' by majority of participants. This informs that computers were not used at home for purely academic purpose by vast majority of students in grade 7. Moreover, based on responses to item SS35, a significant number of students reported that they do not have a designated place for learning at their home.

Figure 95 shows the percentage of responses to the items measuring Dhivehi (represented by the inner circle) and English (represented by the outer circle) reading. As evident from the figure, a larger proportion of the students did not read Dhivehi books at all (13.9%) as compared to the corresponding figure for English books (7.2%). Alternatively, a significantly large proportion of students responded that they frequently read English books (36.2%) while the respective figure for Dhivehi books is 10.3%. This shows that students read remarkably more English books than Dhivehi books.

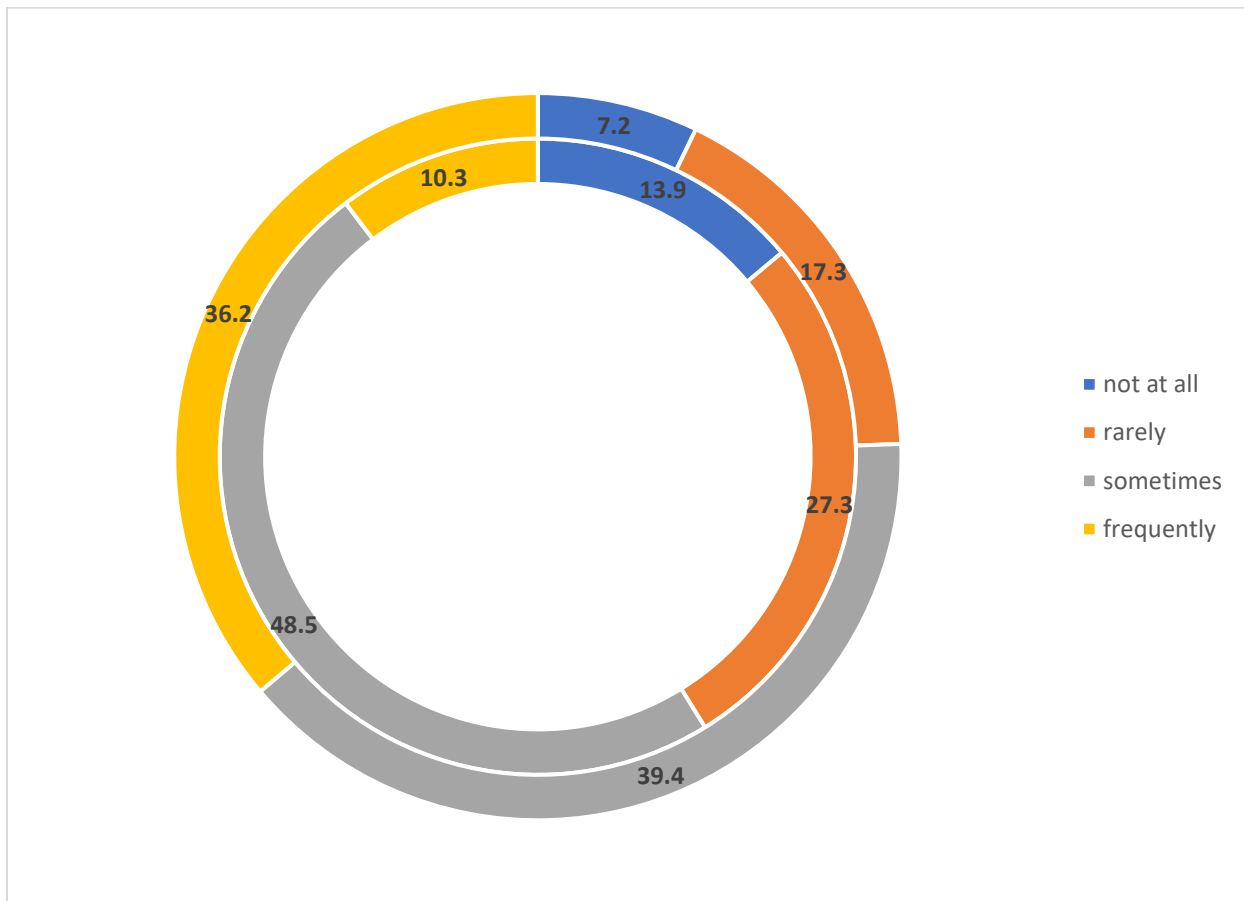


Figure 95 Student engagement in reading, Gr7

Figure 96 shows the percentage of responses to the items on taking tuition in the three selected subjects: Dhivehi (inner circle), English (middle circle), and Mathematics (outer circle). As seen in Figure 96, a significant number of students reported that they did not take any tuition. The percentage of students who did not take tuition in Dhivehi, English, and Mathematics are 54.1%, 42.4%, and 42.4% respectively. On the other hand, a comparable proportion of students reported that they take tuition for 1-3 hours per week. The respective percentages for in Dhivehi, English, and Mathematics are 37.3%, 44.7%, and 43.8%. The respective percentages for 4-6 hours and more than 6 hours are 9.7%, 8.6%, and 5.7% for Dhivehi, English, and Mathematics respectively. The respective percentages for more than 6 hours are 4.1%, 4.3%, and 2.9% for Dhivehi, English, and Mathematics respectively.

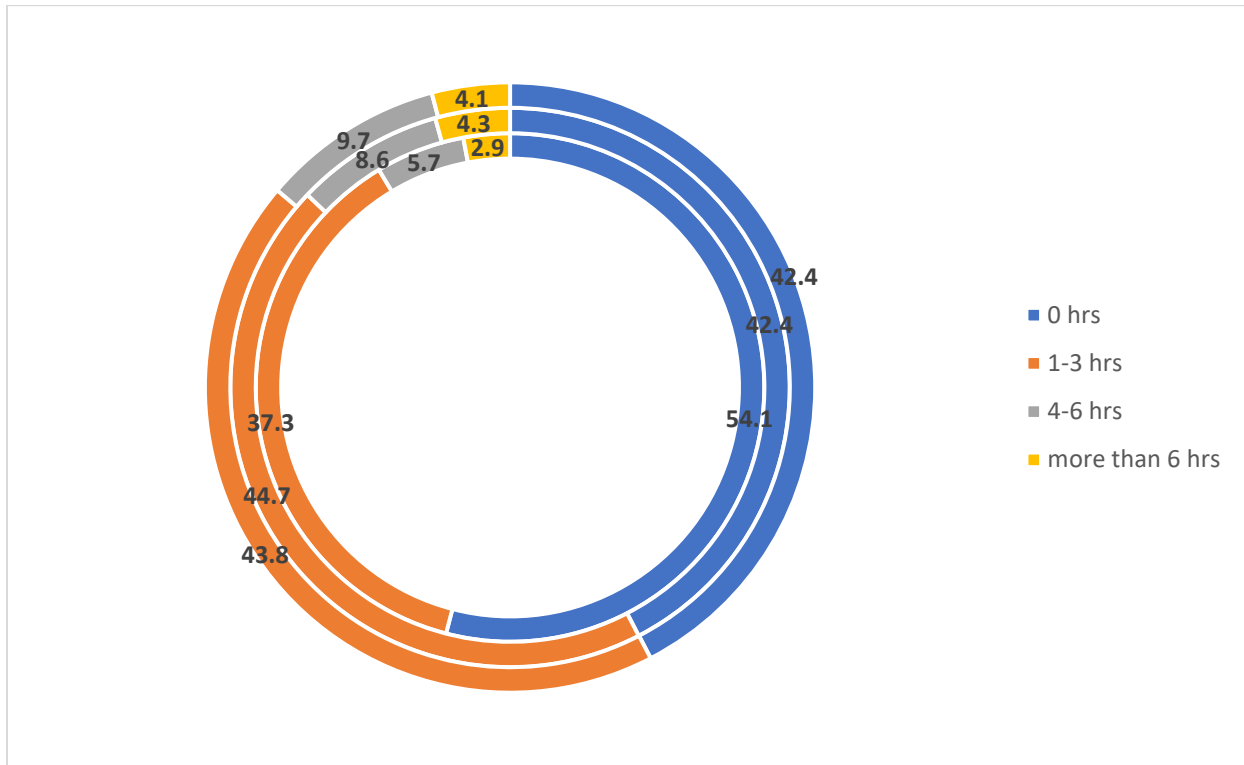


Figure 96 Student engagement in tuition, Gr7

Figure 97 shows the distribution of responses, in terms of percentages, to items on parents' involvement in pupils' studies. These items measure the following:

SS44 measures the extent to which parents enquire about activities students get engaged in school.

SS45 measures the extent to which parents discuss about the lessons with students.

SS46 measures the extent to which parents check if homework is done.

SS47 measures the extent to which parent allow time for pupils' studies.

According to the results in Figure 97, students responded largely positive on most of the items indicating that parent involvement in students' education is significant. The lowest scoring item is SS45 demonstrating that discussions on specific academic topics is less as compared to parents' involvement in other forms.

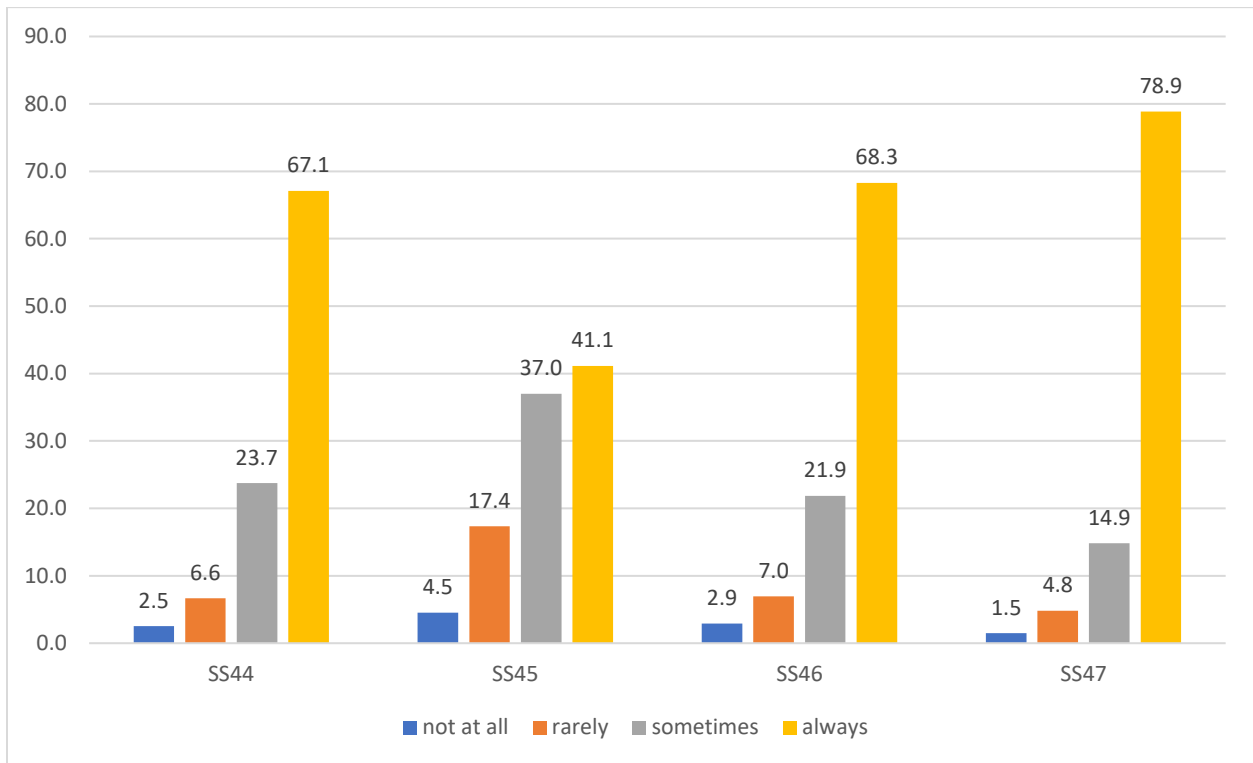


Figure 97 Parent involvement in pupils' studies – Gr7

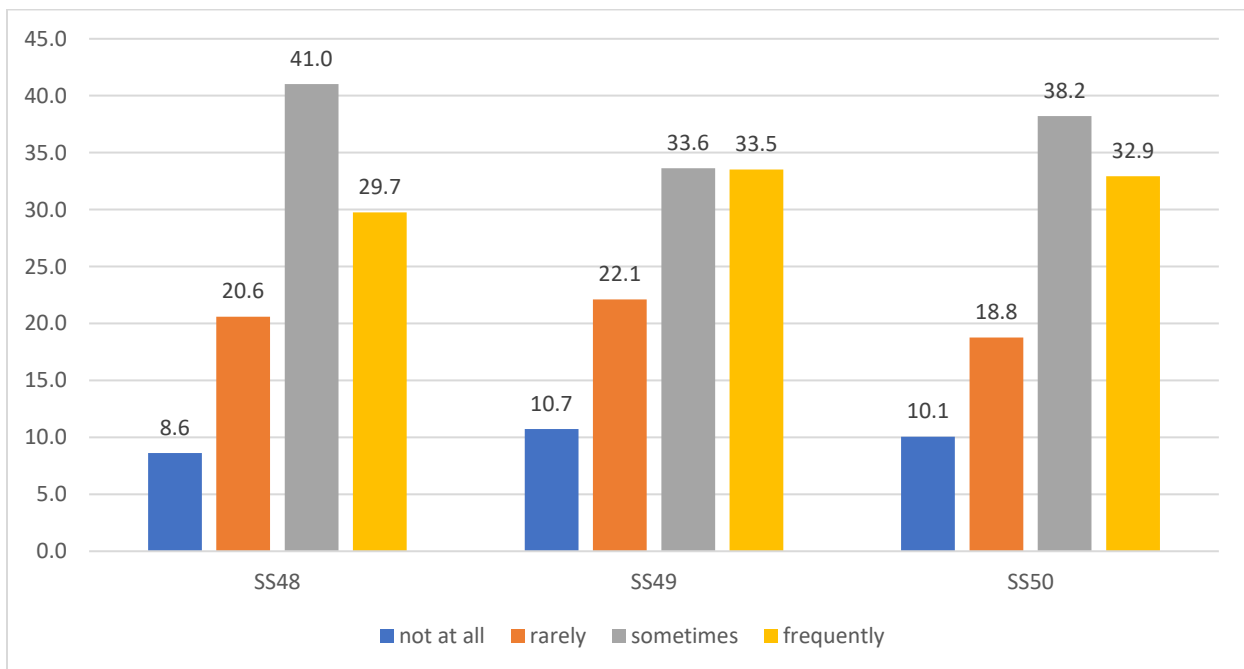


Figure 98 Students involvement in sports, exercise, and gaming – Gr7

Figure 98 shows the extent to which students are engaged in sports or physical exercises (items SS48 and SS49) and computer gaming (SS50). As represented by the results in Figure 98, a significant number of students reported that they frequently get engaged in sports or exercises both within and outside school whereby the respective percentages are 29.7% and 33.5%. However, student engagement in such activities outside school is slightly more. It is also noted that students' frequent engagement in computer games is more or less the same (32.9%) with that for physical activities.

2. Factors influencing academic results

The items in the student survey were grouped into eight factors in order to make more meaningful interpretations. Presented towards the end of this section are the analyses that were conducted taking these factors into consideration rather than the individual items. Parallel to this, the analyses are conducted separately for each of the three subjects included in NALO 2021.

Prior to investigating the impact of the factors, analysis was first conducted to examine the difference in or association between results and of some individual items. Although these items could not be incorporated as a factor due to measurement inconsistencies, their impact on result is crucial to know. In this regard, independent sample t-test was employed to examine if there is a statistically significant difference in results based on whether students demonstrate initiatives in school activities (item SS20), take part in Dhivehi literary activities (item SS21), and take part in English literary activities (item SS22). Table 81 shows the average marks for the two groups (those who take part and those who do not take part in activities) while Table 82 shows the results of the t-tests for significant differences. The average used in SS20 is the overall average for the three subjects students sat at NALO 2021 whereas the averages for SS21 and SS22 are the averages of Dhivehi and English tests respectively.

Table 72 Mean scores for grade 7 student groups related to taking initiatives and participation in co-curricular activities

Item		N	Mean	Std. Deviation	Std. Error Mean
SS20 - Taking initiatives	no	604	55.22	11.410	0.464
	yes	1768	54.17	12.009	0.286
SS21 - Taking part in Dhivehi activities	no	712	60.74	15.009	0.562
	yes	1785	58.92	15.939	0.377
SS22 - Taking part in English activities	no	565	63.45	16.164	0.680
	yes	1952	61.48	16.638	0.377

According to the results in Table 81, students who did not take initiatives scored slightly higher (M = 55.22) than those who did (M = 54.17). Similarly, students who did not take part in Dhivehi literary activities scored higher (M = 60.74) in Dhivehi than those who did (M = 58.92). Also,

students who did not take part in English literary activities scored higher ($M = 63.45$) in English than those who did ($M = 61.48$).

Further to the descriptive statistics in Table 81, the results in Table 82 reveals that there is no statistically significant difference in achievement between students who took initiatives and those who did not. However, there is a statistically significant difference in Dhivehi achievement between those who took part in Dhivehi literary activities and those did not. Likewise, there is a statistically significant difference in English achievement between those who took part in English literary activities and those did not. Surprisingly, these results show that those who took part in relevant literary activities performed worse than those who did not.

Table 73 Difference in grade 7 student achievement based on taking initiatives and co-curriculum

Item	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
								Lower	Upper
SS20	4.151	0.042	1.931	1092.402	0.054	1.053	0.545	-0.017	2.122
SS21	6.096	0.014	2.688	1383.024	0.007	1.821	0.677	0.492	3.149
SS22	0.501	0.479	2.497	2515.000	0.013	1.972	0.790	0.423	3.521

Next, in line with the preceding analyses, item-based analyses were also conducted for the items SS39 and SS40. These items measure the amount of reading Dhivehi and English books respectively. A bivariate correlation was performed in order to examine if there is a statistically significant relationship between reading and student achievement. Accordingly, the results indicated that there is no statistically significant correlation between reading Dhivehi books and Dhivehi performance in NALO 2021, $r(2501) = .000$. Likewise, there is no statistically significant correlation between reading English books and English performance in NALO 2021, $r(2511) = .014$.

After presenting the results for the individual items, next are the results of the multiple regression analyses that were carried out to investigate the impact of the selected factors on student outcome. A total of eight factors composed of multiple as well as single items were engaged in the analyses. These factors are; (i) perception about school – items SS7 to SS11, (ii) perception on teaching – items SS12 to SS18, (iii) safety at school – items SS23 to SS33, (iv) learning environment at home – items SS34 to SS38, (v) tuition – SS41 to SS43, (vi) parents' involvement – SS44 to SS47, (vii) physical activity – SS48 to SS49, and (viii) gaming – SS50. As the items for tuition measured the number of hours for tuition on specific subjects, this factor was considered a single-item factor and was analysed in association with the respective subjects. Prior to reading the results, all the necessary tests were employed in assessing if the data complies with statistical assumptions associated with regression.

Table 83 shows the results of the regression analysis conducted for student performance in the NALO 2021 Dhivehi Gr7. The results indicate that, despite statistically significant impact of one

variable (F1, perception on school), the model as a whole does not significantly explain changes in student achievement in grade 7 Dhivehi [$F(8, 2300) = 1.342, p = .218$]. This means that the selected factors do not have a significant impact on student performance in this case. This does not mean, however, that the factors are less important for student learning in general.

Table 74 Impact of selected variables on student achievement in NALO 2021 Dhivehi_Gr7

Factors	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	62.973	2.966		21.231	0.000		
F1	-1.153	0.492	-0.060	-2.345	0.019	0.667	1.499
F2	0.364	0.384	0.024	0.948	0.343	0.675	1.481
F3	-0.143	0.168	-0.019	-0.852	0.394	0.873	1.146
F4	-0.358	0.336	-0.024	-1.065	0.287	0.840	1.190
F5	0.232	0.452	0.011	0.512	0.608	0.968	1.033
F6	0.130	0.163	0.018	0.799	0.425	0.833	1.201
F7	0.184	0.215	0.019	0.856	0.392	0.928	1.077
F8	-0.280	0.348	-0.017	-0.806	0.421	0.977	1.024

$F(8, 2300) = 1.342, p = .218, R\text{-square} = 0.005$

Table 84 shows the results of the regression analysis conducted for student performance in the NALO 2021 English Gr7. The results indicate that, despite statistically significant impact of one variable (F6, parents' involvement), the model as a whole does not significantly explain changes in student achievement in grade 7 English [$F(8, 2320) = 1.454, p = 1.69$]. This means that the selected factors do not have a significant impact on student performance in this case. This does not mean, however, that the factors are less important for student learning in general.

Table 75 Impact of selected variables on student achievement in NALO 2021 English_Gr7

Factors	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	64.148	3.126		20.519	0.000		
F1	-0.655	0.519	-0.032	-1.262	0.207	0.664	1.506
F2	0.233	0.405	0.015	0.575	0.566	0.671	1.489
F3	0.235	0.178	0.029	1.320	0.187	0.876	1.141
F4	0.434	0.354	0.028	1.226	0.220	0.839	1.191
F5	0.217	0.447	0.010	0.485	0.628	0.966	1.035
F6	-0.382	0.173	-0.050	-2.212	0.027	0.833	1.201
F7	-0.100	0.227	-0.009	-0.441	0.659	0.927	1.078
F8	0.577	0.366	0.033	1.573	0.116	0.976	1.025

$F(8, 2320) = 1.454, p = 1.69, R\text{-square} = 0.005$

Table 85 shows the results of the regression analysis conducted for student performance in the NALO 2021 Mathematics Gr7. The results indicate that the model does not significantly explain changes in student achievement in grade 7 Maths [$F(8, 2325) = 0.618, p = .763$]. This means that

the selected factors do not have a significant impact on student performance in this case. This does not mean, however, that the factors are less important for student learning in general.

Table 76 Impact of selected variables on student achievement in NALO 2021 Maths_Gr7

Factors	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	43.018	2.239		19.214	0.000		
F1	-0.231	0.370	-0.016	-0.626	0.532	0.679	1.474
F2	-0.190	0.287	-0.017	-0.663	0.508	0.685	1.461
F3	-0.025	0.125	-0.004	-0.196	0.845	0.875	1.142
F4	-0.007	0.249	-0.001	-0.030	0.976	0.848	1.179
F5	0.246	0.309	0.017	0.796	0.426	0.967	1.034
F6	-0.043	0.122	-0.008	-0.357	0.721	0.834	1.199
F7	0.028	0.159	0.004	0.174	0.862	0.930	1.076
F8	0.344	0.259	0.028	1.330	0.184	0.975	1.025

$F(8, 2325) = 0.618, p = .763, R\text{-square} = 0.002$

Overall, the preceding results demonstrated no substantial contribution of the factors to student achievement. Despite statistically significant impact of a few factors, the models depict no influence on student achievement. This could mean that there are other more influential factors that could possibly affect (but not included in the model) student achievement in the given context. The inconsistencies in the results and the little variance explained could also be due to the tool and method used in data collection for student survey.

TEACHER SURVEY

The teacher survey contained several items to capture demographic details of the respondents and a number of items measuring various aspects of teaching and learning. Findings for the demographic items are presented first followed by findings for the items on teaching and learning.

1. Demographic profile of teachers

A total of 1710 teachers responded to the teacher survey that was conducted as part of NALO 2021. As depicted from Figure 99, 336 (19.65%) of the sample are males while 1374 (80.35%) are females.

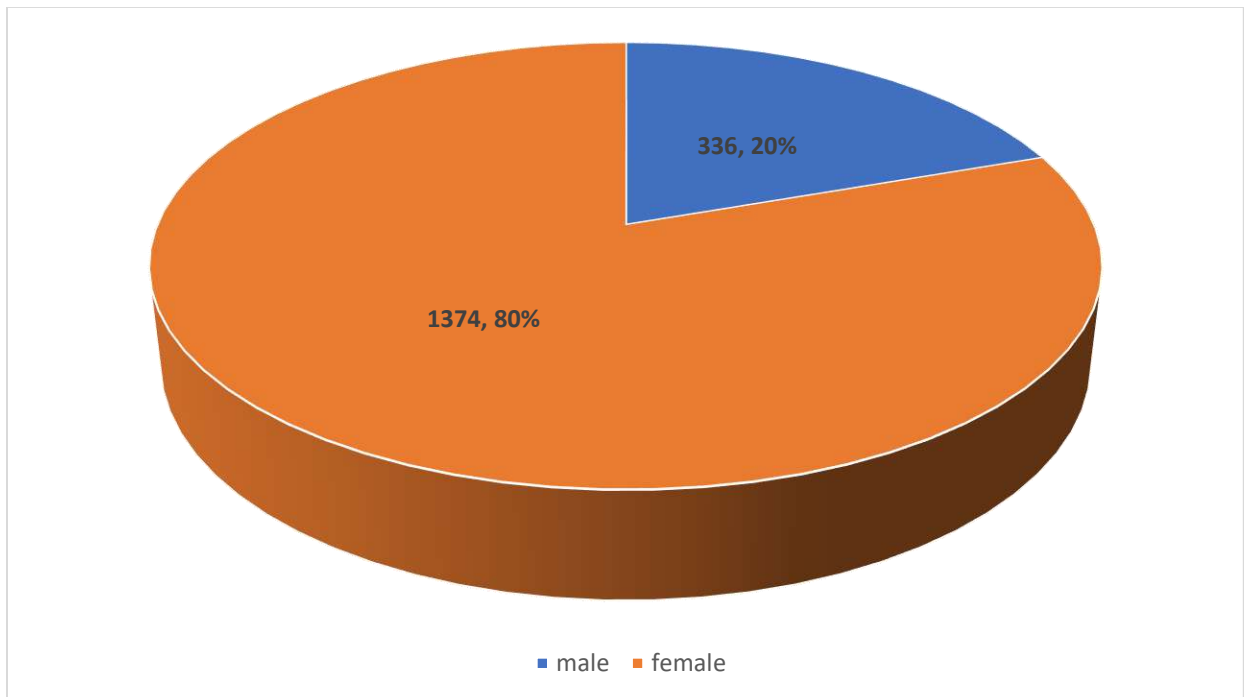


Figure 99 Gender distribution of teacher respondents

Figure 100 depicts the highest educational qualification of the teachers. According to the figure most of the teachers have acquired a bachelors' degree (N = 562) while the number of masters' degree holders are also quite high (N = 518). Number of teachers who have not obtained at least a diploma (N = 66) is relative less.

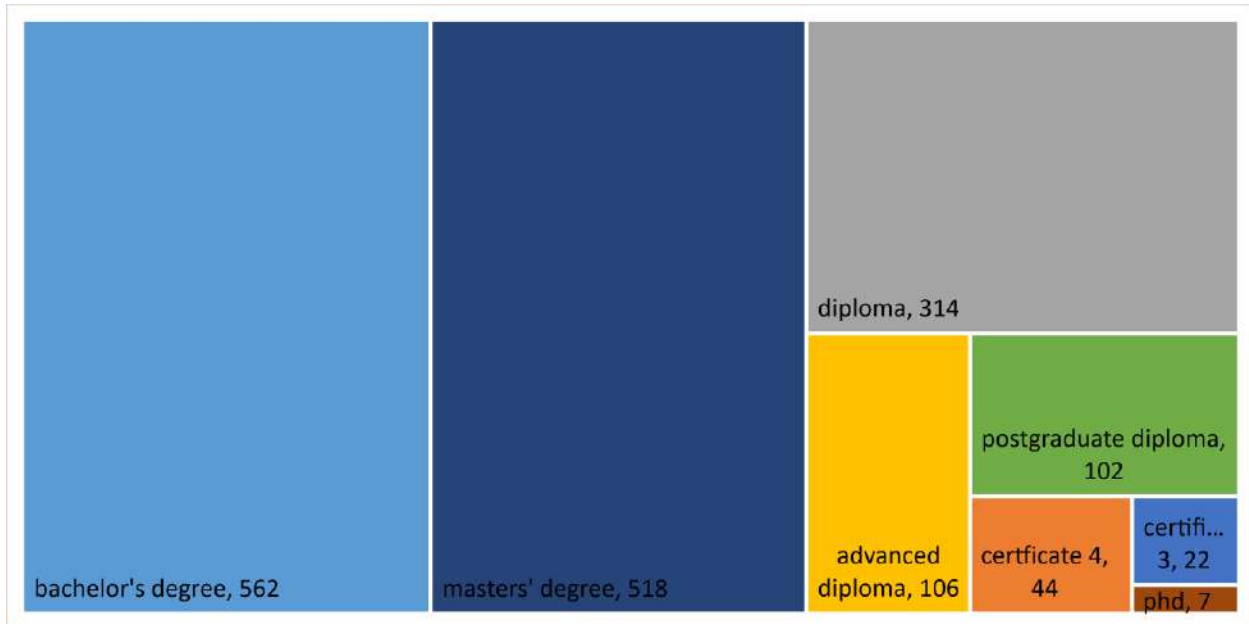


Figure 100 Educational qualification of teachers

Figure 101 shows the number of teachers who have acquired specialised training in the selected areas. According to the results, most teachers report that they have obtained specialised training in English literacy (N = 333, 40%) while the least was in Mathematics education (N = 209, 25%).

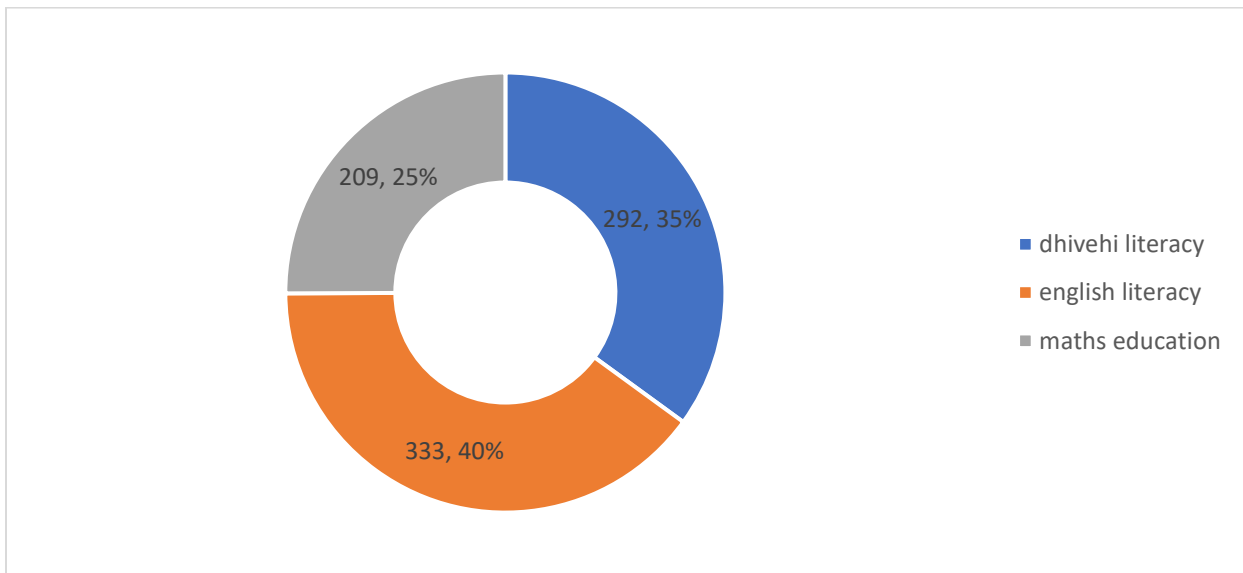


Figure 101 Number of teachers who obtained specialised training

Figure 102 shows the number of hours teachers spent in professional development activities. According to the figure, with 652 (40%) most of them got engaged in PD for 6 to 15 hours. Further, while an alarming amount of 323 teachers (20%) reported that they did not have any professional development during the preceding year, 61% of teachers reported that they had at least 6 hours of professional development.

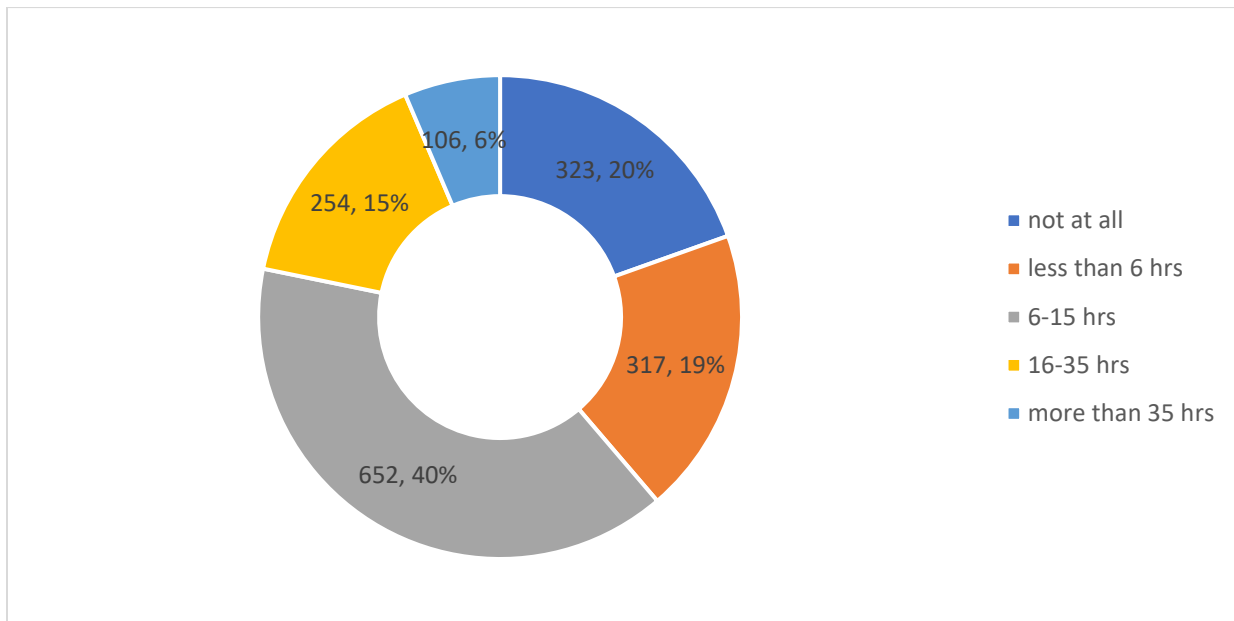


Figure 102 Amount of professional development acquired by teachers

2. Teacher responses to aspects of teaching and learning

Figure 103 shows the percentage teachers agreement or disagreement to the items on various aspects of schooling. As these items represent multiple facets of teaching and learning, findings of some selected items are reported here. Accordingly, item t11 measures teachers' agreement to the item on whether students put their maximum effort in doing well in school. As, evident from Figure 103, a significant number of teachers (41%) disagree that students put their best effort in studies. On the other hand, on item t13, the vast majority of teachers (96%) agree that students feel safe at school. Similarly, on item t14, majority of teacher (87%) agree that students are well disciplined. Moreover, on item t18, a significant majority of teachers (96%) agree that parents are involved in school activities.

Items t19 and t22 asks about availability of computers and teaching resources respectively. Although the majority of teachers agree that these resources are available in their schools, a substantial number of teachers (38%) disagree that computers are available in their schools for lesson planning and other purposes. Likewise, a considerable number of teachers (46%) disagree that resources for teaching are available in their schools. In reference to item t23, the majority

of teachers (89%) agree that they have received training on new curriculum. Moreover, with 87%, majority of teachers who responded to item t27 said that they are satisfied with their job.

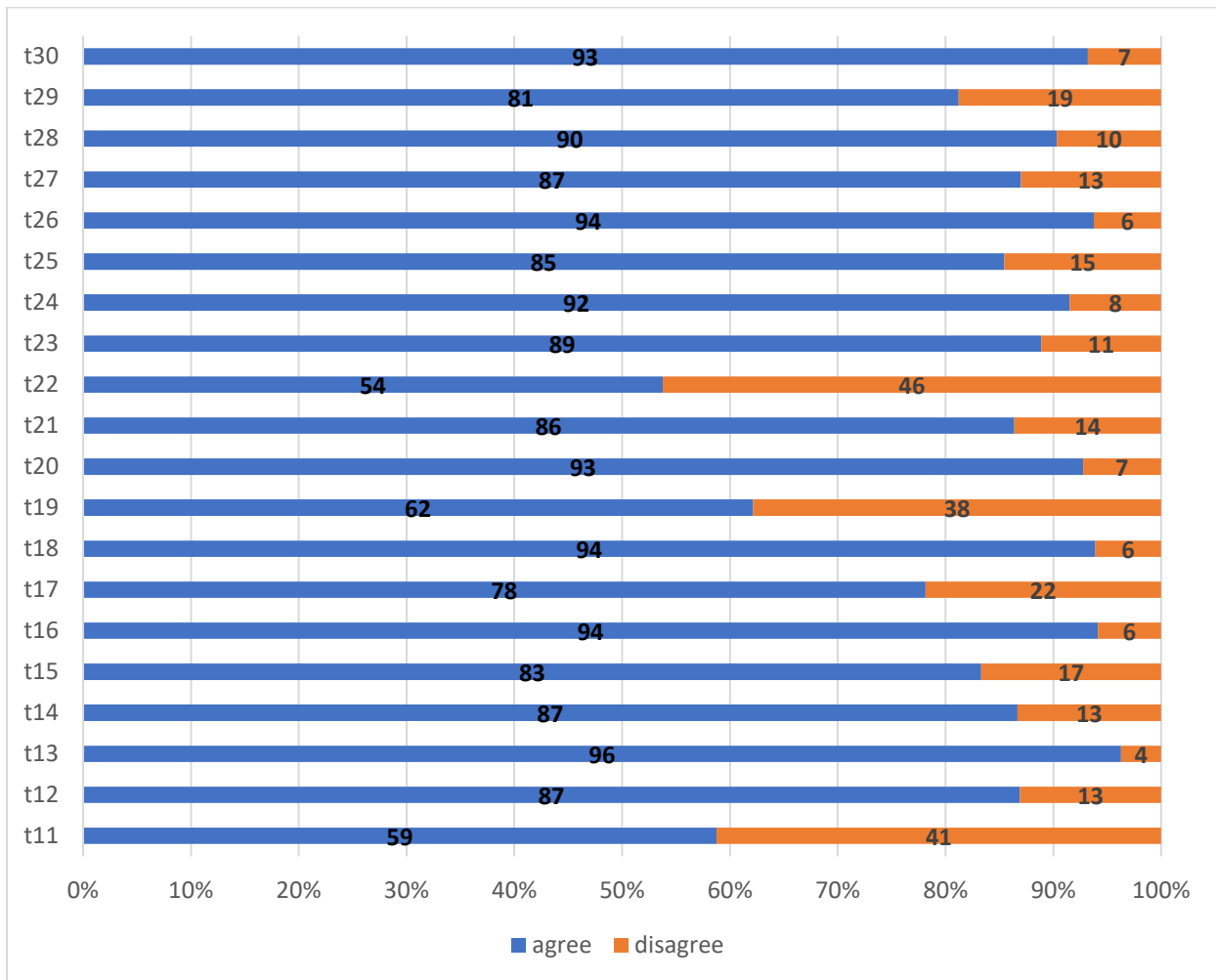


Figure 103 Teachers’ response to aspects of schooling

Overall, the preceding results highlight the need for improved resource allocation/utilisation, placing an academic emphasis on students, and providing authentic and relevant professional development for teachers.

CHAPTER 7

CONCLUSIONS AND RECOMENDATIONS

CONCLUSIONS

NALO 2021 is the fourth episode of national assessment since 2015. In this edition, students in grades 4 and 7 were tested in Dhivehi, English language, and Mathematics. NALO 2021 is composed of three major elements which are NALO test items, international assessment test items, and student and teacher surveys.

The findings indicate that, on average, students achieved the commonly considered minimum pass percentage of 40 in all the tested subjects. Nonetheless, achievement in Mathematics has merely crossed the bar indicating that a greater emphasis is required on Mathematics skills. The downwards slope of Mathematics achievement over the years amplifies the gravity of attention required in this regard. Moreover, the results also show that the overall gender disparity whereby girls outperform boys continues. Additionally, disparity in performance between urban and rural areas were evident though it differed among subjects.

With respect to international assessment items, the findings revealed that student performance in English and Mathematics at grade 4 is substantially low at all cognitive levels as compared to international benchmarks.

Findings from the student survey revealed that there is a tendency that students read more English books than Dhivehi while parents' involvement in subject-specific issues is less as compared to other forms of involvement. As for the factors associated with student performance the overall findings are inconclusive due to inconsistencies across subjects and grades and lack of statistical significance. Finally, from the teacher survey, it was identified that many teachers did not get subject-specific professional development during the preceding year.

Having summarised the overall findings, presented ahead are specific recommendations drawn from the findings as well as from the overall engagement with the data.

RECOMMENDATIONS

The following recommendations are made from two perspectives: (i) on administering NALO, and (ii) interventions in the teaching and learning process.

A. Recommendations on administering NALO

1. Establishing benchmarks

In the current NALO report – as well as in the previous NALO reports – the primary method of evaluating achievement of learning outcomes was to refer to the mean percentage mark. Although the NALO report of 2017 (QAD, 2018) mentioned a 40% cutoff as the pass mark, there is a need to revise this criterion as it seems to be inconsistent, thus less practical, across the school system. Hence, there is a need to set clear benchmarks such as the one recommended in Maldives education sector analysis (MoE, 2019). The report propagates benchmarks as follows: (i) minimum proficiency benchmark (ii) intermediate proficiency benchmark and (iii) the advanced proficiency benchmarks.

2. Revising test items

The missing percentage for some items was quite high. Certain items were unattempted by approximately 10% to 20% of students which is considered a high amount for a cognitive test of this nature. Whereas 15% to 20% missing responses is common in education and psychology (Dong & Peng, 2013), a missing percentage more than five could be considered somewhat high in the context of evaluating educational programmes (National Center for Education Evaluation and Regional Assistance - NCEE, 2009). Although the reason for missing responses cannot be entirely attributed to the item-design, it is strongly recommended that curriculum and subject experts re-visit these items to explore the possible causes of students not attempting these items. Such investigations could inform actions on test development as well as on implementing curriculum at the classroom level.

3. Conducting pre-test

Errors were identified in certain NALO tests, especially in Dhivehi language. The errors include inconsistent question numbering and inclusion of irrelevant items. Hence, in addition to pilot testing the items, there is also a need to check the entire test paper carefully. If pilot testing of the entire paper is not possible, it is highly recommended that the test paper is pre-tested.

4. Transparent sampling

Although data on schools that were selected for NALO 2021 subject assessments were clearly reported, the techniques by which those schools were selected was not obvious. Moreover, as the number of schools that were selected are almost close to the total population, the need for drawing a sample is not clear. Thus, there are two alternative recommendations in this regard;

(i) apart from reporting the sample size, also report the sampling technique that is employed in the selection of schools – stratified sampling technique is suggested in this regard, OR (ii) use population sampling or census.

5. Validating student and teacher surveys

One of the intended purposes of the student survey was to use the data for investigating possible correlations between the survey items (factors) and student achievement. While some factors were identified by referring to the content of the items in the student questionnaire, there was no evidence of validating the questionnaire particularly with respect to its dimensionality. This issue presented certain challenges in proceeding with the intended analyses. Furthermore, the inconsistencies in the rating scales used for different items made the analysis more complicated. Hence, it is recommended that the student and teacher survey be re-constructed and validated by considering these issues. Further, it is also suggested to consider other possible factors that could be associated with student performance identified in international literature (see for example, Hattie, n.d.), if at all such type of data collection can be incorporated into, or even necessary, for NALO.

6. Careful data entry and/or transfer

In a relatively few cases, it was identified that some data were not entered into the data file. Additionally, it was also noticed that student responses to test items were wrongly entered in some cases. While these were treated as missing cases in this report, it is recommended that measures should be taken to avoid or minimise such issues in future. Protocols for data entry, storage, transfer, and validation must be established in this regard.

B. Recommendations on interventions in the teaching and learning process

7. Attention to Mathematics

The comparably low performance in Mathematics, especially when associated with the downward slope in achievement patterns over the NALO episodes, is of particular concern. It is recommended that further investigations be carried out around teaching and learning of Mathematics to find out possible causes of low achievement in the subject across the nation.

8. Narrowing the gender gap

As for the NALO results, girls consistently outperform boys, thus sustaining the gender disparity in academic performance. While this phenomenon is not unusual considering educational achievement pattern of girls and boys globally (Delaney & Devereux, 2021), it is recommended that in-depth studies are conducted to identify the possible causes for these differing results so that subsequent strategies could be devised to address the issue. Such studies must be guided by existing literature on the topic.

9. Difference between atolls

It was noticed that in Dhivehi language student in rural areas generally performed better as compared to urban areas while for English language the findings are almost the exact opposite. Hence, it is recommended to do further studies that could identify differing characteristics between rural and urban schools that could possibly be associated with the difference in student performance. Interventions can then be designed and carried out accordingly.

10. Focus on cognitive levels in teaching

The findings for international assessment items depict that students in Maldives performed lower at all cognitive levels. This may suggest that there is a need to build teaching and learning activities on Piaget's stages of cognitive development rather than teacher-centered rote learning. In fact, following Piagetian programmes is among the most impactful factors for student achievement (Hattie, n.d.).

11. Focus on subject specific competencies in teaching

The results indicate substantial differences in student performance in subject-wise competencies that were tested in NALO 2021. For instance, comprehension of difficult text in English and fraction in Mathematics were identified as relatively low performing skill areas. It is recommended that policies and programmes be developed at national level to address such disparities while schools can devise strategies to address such issues based on the individual school reports of NALO 2021.

12. Authentic teacher professional development

Despite execution of school based professional development across the country, a substantial number of teachers reported that they did not get subject-specific professional development exposure. Hence, it is recommended that schools need to re-consider the type and format of professional development activities offered to teachers to make them authentic, realistic, and meaningful to teachers (Glickman et al., 2010).

Part III

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APPENDICES

APPENDIX A
Dhivehi language competencies assessed – Gr 4

Item	Standards/Competencies Assessed										
	C1	C2	C3	C4	C5	C6	C7a	C7b	C8	C9	C10
1					✓						
2					✓						
3					✓						
4					✓						
5					✓						
6					✓						
7		✓									
8		✓									
9			✓								
10			✓								
11										✓	
12										✓	
13										✓	
14										✓	
15										✓	
16										✓	
17											✓
18											✓
19							✓				
20							✓				
21							✓				
22							✓				
23									✓		
24									✓		
25									✓		
26							✓				
27								✓			
28								✓			
29								✓			
30								✓			
31								✓			

Competencies

1. Knows names of objects, birds and animals not seen in daily life
2. Knows meanings, spellings, and opposites of words used in daily life
3. Correct sentence formation, punctuation, and sequencing

4. Comprehends very simple sentences or a simple paragraph
5. Parts of speech, gender, number, tense, articles, etc
6. Understands information presented in authentic material
7. a) Comprehends passages of intermediate difficulty. b) Comprehends information by viewing a photo or picture.
8. Comprehends complex passages of high difficulty
9. General knowledge
10. Features of letter writing

APPENDIX B
Dhivehi language competencies assessed – Gr 7

Item	Standards/Competencies Assessed												
	C1	C2	C3	C4	C5	C6	C7a	C7b	C8	C9	C10	C11	C12
1		✓											
2		✓											
3					✓								
4					✓								
5		✓											
6		✓											
7					✓								
8					✓								
9					✓								
10					✓								
11					✓								
12												✓	
13												✓	
14					✓								
15					✓								
16					✓								
17					✓								
18					✓								
19					✓								
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21										✓			
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31										✓			
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35								✓					
36								✓					

37		✓
38		✓
39		✓
42	✓	
43	✓	
44	✓	
45	✓	

Competencies

- 1) Knows names of objects, birds and animals not seen in daily life
- 2) Knows meanings, spellings, and opposites of words used in daily life
- 3) Correct sentence formation, punctuation, and sequencing
- 4) Comprehends very simple sentences or a simple paragraph
- 5) Parts of speech, gender, number, tense, articles, etc
- 6) Understands information presented in authentic material
- 7) a) Comprehends passages of intermediate difficulty. b) Comprehends information by viewing a photo or picture.
- 8) Comprehends complex passages high difficulty
- 9) Know meanings of "Adhabee bas" literary devices
- 10) General knowledge
- 11) Identifying Subject and predicate of a sentence.
- 12) Features of Letter Writing

APPENDIX C
English language competencies assessed – Gr 4

Item	Standards/Competencies Assessed							
	C1	C2	C3	C4a	C4b	C5	C6	C7
1	✓							
2		✓						
3		✓						
4			✓					
5							✓	
6							✓	
7					✓			
8					✓			
9				✓				
10					✓			
11					✓			
12					✓			
13						✓		
14						✓		
15						✓		
16						✓		
17							✓	
18							✓	
19							✓	
20							✓	
21							✓	
22							✓	
23							✓	
24							✓	
25		✓						
26							✓	
27								✓
28								✓
29								✓
30								✓
31								✓
32								✓

Competencies

- 1) Knows names of objects, birds and animals not seen in daily life
- 2) Knows meanings, spellings, and opposites of words used in daily life
- 3) Correct sentence formation, punctuation, and sequencing
- 4) a) Reading and viewing, b) Comprehends very simple sentences or a simple paragraph
- 5) Parts of speech, gender, number, tense, etc
- 6) Comprehends texts of intermediate difficulty and identify different text types.
- 7) Comprehends complex texts of high difficulty

APPENDIX D
English language competencies assessed – Gr 7

Item	Standards/Competencies Assessed							
	C1	C2	C3	C4	C5	C6	C7	C8
1	✓							
2	✓							
3		✓						
4		✓						
5		✓						
6		✓						
7		✓						
8		✓						
9			✓					
10				✓				
11				✓				
12				✓				
13				✓				
14				✓				
15				✓				
16					✓			
17					✓			
18					✓			
19					✓			
20						✓		
21						✓		
22						✓		
23						✓		
24							✓	
25							✓	
26							✓	
27							✓	
28							✓	
29							✓	
30							✓	
31							✓	
32								✓
33								✓
34								✓
35								✓

36

✓

37

✓

Competencies

- 1) Knows names of objects, birds and animals not seen in daily life
- 2) Knows meanings, spellings, and opposites of words used in daily life
- 3) Correct sentence formation, punctuation, and sequencing
- 4) Comprehends very simple sentences or a simple paragraph
- 5) Parts of speech, gender, number, tense, articles, etc
- 6) Understands information presented in authentic material
- 7) Comprehends texts of intermediate difficulty; identify different text types; identify features of a text type
- 8) Comprehends complex texts of high difficulty

APPENDIX E
Mathematics competencies assessed – Gr 4

Item	Standards/Competencies Assessed						
	C1	C2	C3	C4	C5	C6	C7
1	✓						
2	✓						
3	✓						
4		✓					
5		✓					
6		✓					
7					✓		
8	✓						
9	✓						
10		✓					
11		✓					
12		✓					
13		✓					
14		✓					
15					✓		
16				✓			
17				✓			
18			✓				
19					✓		
20						✓	

Competencies

- 1) Number sense (related to concepts and basic number competency)
- 2) Arithmetic operations (four basic operations, properties and shortcuts)
- 3) Fractions (concepts and applications)
- 4) Basic shapes (geometry and visual estimation)
- 5) Measurements, data interpretation, analysis and graphs
- 6) Application in daily life (commercial maths, word and visual problems)
- 7) Reasoning and problem solving (advanced or challenging problems)

APPENDIX F
Mathematics competencies assessed – Gr 7

Item	Standards/Competencies Assessed							
	C1	C2	C3	C4	C5	C6	C7	C8
1	✓							
2	✓							
3	✓							
4	✓							
5	✓							
6	✓							
7	✓							
8	✓							
9	✓							
10	✓							
11	✓							
12	✓							
13	✓							
14	✓							
15						✓		
16		✓						
17		✓						
18			✓					
19			✓					
20			✓					
21			✓					
22			✓					
23			✓					
24								✓
25		✓						
26				✓				
27				✓				
28				✓				
29				✓				
30				✓				
31					✓			
32					✓			
33					✓			
34				✓				
35								✓

36

✓

37

✓

38

✓

Competencies

- 1) Number sense (related to concepts and basic number competency)
- 2) Fraction, decimal, ratio and percentage
- 3) Basic shape, geometry and visual estimation.
- 4) Algebra (concepts and application)
- 5) Mensuration (area, volume and surface area)
- 6) Measurement, data, interpretation, analysis and graphs
- 7) Application in daily life, commercial mathematics, word and visual problem
- 8) Reasoning and problem solving (advanced or challenging problems)