Exploring Heaton's testing score as a diagnostic tool: A language testing study on English language learners

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Abstract: This study investigates the utility of Heaton's Testing Score as a diagnostic instrument for English language learners. Focusing on 20 grade 10 English language learners at Amaano Boarding School in Hargeisa, Somaliland, our research employed a blend of qualitative and quantitative methodologies. Our research arsenal encompassed Heaton's Testing Score, a comprehensive questionnaire, and a rigorous focus group interview. The primary aim was to bridge an existing lacuna in the literature regarding the practical application of Heaton's Testing Score in pinpointing areas of improvement for English language learners. Our findings unearthed distinct challenges that students grapple with, particularly in the domains of reading comprehension, vocabulary, and grammar. These issues were discerned through a meticulous analysis of English test questions. Additionally, our questionnaire and focus group interview unveiled insightful perspectives on the root causes, including the limited exposure to English beyond the classroom setting. This nuanced comprehension of learners' impediments adds substantial value to the field. Our results underscore the pivotal role of Heaton's Testing Score as a valuable diagnostic tool, empowering educators and researchers to identify precise areas requiring focused assistance for English language learners. This emphasizes the significance of tailored interventions in ameliorating the learning experience. The study bears implications for educators, policy-makers, and curriculum developers, advocating for a more effective paradigm in language testing and evaluation. In conclusion, this research firmly underscores Heaton's Testing Score as an indispensable diagnostic instrument for language testing, with far-reaching ramifications for the enhancement of English language learners.

Keywords: Diagnostic tool, English language learners, Heaton's Testing Score, Qualitative, Quantitative, SPSS

Biographical notes: Maina Wahome is a Kenyan-born linguist, educator, author, playwright, and poet. He holds a Bachelor of Education (B.Ed. Arts) degree in English and Literature from Laikipia University in Kenya and is currently pursuing his M.A. in Applied Linguistics at Universitas Diponegoro (UNDIP) in Semarang, Indonesia. His research interests in linguistics include Phonology, Morpho-Syntax, Cognitive linguistics, language teaching, and Natural Semantic Metalanguage. Maina is an esteemed contributor of literary works to both Intanga Hub and Queensdale Report magazines, as well as the renowned Newsday newspaper in Harare, Zimbabwe. He has been prominently featured by The News Chronicles newspaper in Nigeria multiple times. Maina's literary accomplishments have not gone unnoticed in Kenya, where he has earned recognition and publication in the Mt. Kenya Daily Times Newspaper. Maina has served as an ESL instructor in Ethiopia and Somaliland.

He has authored a play titled "Trouble for Sale," published by Ukiyoto Publishers (India), as well as three novels: "Trials and Tribulations published by Lambert Academic Publishing (Germany)," "The Double-Edged Princess" published by Academy Press (California, USA), Crowned Butcher published by Ukiyoto Publishers, and an academic writing book titled "The Illuminator." He has also co-authored anthologies of poems, including "Of Poets, Passions, Places and Paradoxes- Thou Shall Not Judge" with Zimbabwean writer Ndaba Sibanda and "Musings: Values, Virtues, and Vices of Africa and Beyond: An Anthology of African Poetry" with a Kenyan poetess and a Nigerian poet, published by Ukiyoto Publishers. Maina has authored two published critical analyses of books, specifically titled "A Critical Analysis of 'Of the Saliva and the Tongue'" and "The Smell of Betrayal: 'You Sting My Heart'."

Maina has written linguistics papers titled "The Phonological Processes of the Kikuyu Dialectical Words: A Distinctive Features Approach," published by the International Journal of Innovative Research and Development in its March 2023 issue (Volume 12:1-12); An Analysis of Swahili Verbal Inflection and Derivational Morphemes published by JLLLS, Vol.3(vol. 3 No. 3 (2023)):2788-4473 and an article on Ndaba's novella, The Immigrant
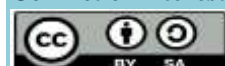
1. Introduction

As the number of English Language Learners (ELLs) in schools and universities throughout the world rises, there has been an increase in interest in the field of language testing and assessment. According to Angelo and Cross (1993), the main goal of classroom assessment is to enhance student learning. They contend that evaluation should be regarded as an essential learning component rather than a distinct activity from instruction. In other words, rather than just evaluating students' achievement at the conclusion of a unit or course, evaluation should be utilized to inform and steer instruction. In order to meet the needs of these students, language teachers and administrators must have effective tools and methods to assess their language proficiency and identify areas of improvement. Foremost, the test is oriented to the previous teaching, but in the second instance, the instruction is frequently directed primarily to the exam (Heaton, 1990). For Grade 10 students at Amaano Boarding School, this study employs Heaton's Testing Score (HTS) to pinpoint areas that need improvement. The study aims to give language teachers a trustworthy and accurate instrument for evaluating their students' language competency and identifying areas that require development. A test is described as "a systematic and standardized series of procedures for eliciting and measuring language ability" (Fulcher & Davidson, 2007: 5).

The selection of Grade 10 students is predicated on the presumption that they are situated at a pivotal juncture within their educational journey, nearing the culmination of their junior high school education. This juncture is deemed crucial for the evaluation of language proficiency due to the anticipated heightened development of students' linguistic aptitude at this stage. Concurrently, junior high school students find themselves in a transitional phase, bridging the scholastic chasm between elementary and high school. Placing an academic focus on this level serves the purpose of identifying and redressing potential deficiencies in language competence prior to their progression into high school, where language skills assume heightened importance for academic attainment.

The selection of Somaliland as the research setting is attributed to both the accessibility of this locale and the specific interest in the education system indigenous to the region. Moreover, it is noteworthy that the researcher possesses an array of connections, resources, and access to both data and participants within the confines of Somaliland, rendering it a pragmatic and expedient choice for the research endeavor. Heaton's Testing Score (HTS) garners its selection by virtue of its standardized and systematic approach to the assessment of language proficiency. This selection aligns seamlessly with the overarching research objective, which seeks to furnish language educators with a dependable instrument for the evaluation of language competency. The incorporation of a well-established assessment tool such as HTS augments the veracity and credibility of the study's findings.

The Heaton's Testing Score is a typical assessment that evaluates a variety of language abilities in the English language. According to Brown and Lee (2015: 5), a test is "an assessment instrument with a set of predefined, standardized procedures for administration and scoring". The test is made for students in Grade 10 who are not native English speakers and who have various levels of language ability. The goal of the test is to pinpoint areas of each language skill where the student or teacher needs to make improvements and to provide feedback on how to do so. A test, according to Bachman (1990), is "any systematic procedure for measuring a sample of behavior or performance".

The theoretical background of the test design draws upon the principles of language assessment, which is a systematic, ongoing process of collecting, analyzing, and interpreting information about language learners and their language use. Hughes (2003: 13) defines a test as "a systematic method of measuring a sample of language behavior". Validity, or the degree to which a test measures what it is supposed to measure, is one of the fundamental concepts of language assessment. Teachers must ensure the validity and safety of their classroom assessment methods and apply them in a way that improves student learning (Black & Wiliam, 1998). A team of specialists in the field of language testing and assessment thoroughly selected and examined the test items to ensure the validity of Heaton's Testing Score.

Reliability is a key concept in language evaluation, which refers to the consistency of test results across time and among many raters. Reliability is described as "the degree of consistency or dependability of a test score or measurement" (Bachman, 1990: 147). By employing a standardized scoring system and giving raters explicit instructions on how to score each item, the HTS was created to be trustworthy. According to Brown and Lee (2015: 147), a test's reliability is determined by how consistently it yields results when given to the same subjects on numerous occasions or under various circumstances.

Previous research has significantly advanced the understanding of Heaton's Testing Score (HTS) as a diagnostic tool for language assessment. Various studies have explored the efficacy and validity of HTS across diverse language skills and learner populations, providing valuable insights into the field. The usefulness of HTS as a diagnostic tool for assessing English language proficiency was examined in depth (Wu & Li, 2015). Their findings substantiated that HTS is indeed an effective tool for diagnosing English language proficiency, thereby establishing it as a valuable asset for assessing learners' language skills. Continuing this line of investigation, Zhang and Liu (2016) focused on assessing the validity of HTS in gauging speaking ability in ESL learners. Their study's outcomes confirmed that HTS serves as a valid tool for accurately assessing the speaking ability of ESL learners.

Based on these investigations, Abdullah and Al-Khatib (2017) investigated the validity and reliability of the HTS for assessing reading comprehension in L2 students. According to their research, HTS is a relevant and accurate tool for evaluating the reading comprehension of L2 learners. Further broadening the scope, Wang and Lu (2018) explored the

effectiveness of HTS in diagnosing grammatical errors in L2 writing. Their study concluded that HTS effectively diagnoses grammatical errors in L2 writing, bolstering its utility as an accurate assessment tool. Similarly, Chen and Zhang (2019) looked at how HTS is used to evaluate L2 learners' vocabulary knowledge. According to their findings, the HTS is a reliable tool for determining how well L2 learners know their vocabulary.

Extending the applicability of HTS, Xu and Huang (2020) investigated its use in measuring listening comprehension in L2 learners. Their research revealed that HTS is a reliable and valid tool for accurately measuring listening comprehension in L2 learners. The efficiency of HTS as a screening tool for English language learners was investigated by Kim and Lee in 2021. Their research confirmed that HTS is a useful screening method for locating English language learners who may need more language assistance. Furthermore, Chang and Hsu (2021) utilized HTS to measure the effectiveness of an ESL program. Their study demonstrated that HTS is an effective tool for accurately measuring the program's effectiveness.

Continuing the pursuit of comprehensive language assessment, Yang and Liu (2022) investigated the use of HTS in assessing pronunciation in L2 learners. Their findings highlighted the reliability and validity of HTS in accurately assessing pronunciation. Similarly, Lee and Park (2022) examined the effectiveness of HTS in predicting academic success for English language learners. Their research established that HTS is an effective tool for accurately predicting academic success for English language learners.

While these previous studies have enriched the understanding of HTS as a diagnostic tool for English Language Learners, there remains a research gap concerning its application and relevance in specific educational settings, such as grade 10 English language learners at Amaano Boarding School. To close this gap, the current project looks into how HTS can pinpoint specific areas of difficulty for this group of students and offer targeted solutions to help them get better. This project will advance our understanding of the value of HTS as a diagnostic tool for language testing and evaluation by combining qualitative and quantitative methodologies with statistical applications for data processing. The results will enable improved support for English language learners at Amaano Boarding School by educating language teachers and administrators about efficient language assessment practices for this specific environment.

Heaton's Testing Score is a criterion-referenced test, which means it evaluates a student's performance on a list of established standards or criteria. A norm-referenced test, on the other hand, compares a student's performance to that of students of the same age or grade level. In addition, Brown and Lee (2015) go over a variety of exams that are frequently employed in language instruction. These include:

i. Achievement tests: These exams measure students' knowledge and proficiency in a particular academic matter or linguistic ability.

ii. Proficiency tests: These exams, which are typically based on the Common European Framework of Reference (CEFR) or another comparable framework, are intended to assess students' overall language proficiency.

iii. Diagnostic assessments: These assessments are intended to determine a student's strengths and weaknesses in a certain language skill or subject area so that specialized teaching can be given to address those areas.

iv. Placement tests: These tests are used to determine students' level of proficiency in a particular language, and to place them in appropriate courses or programs.

v. Progress tests: These tests are used to measure students' progress over time, usually by comparing scores from multiple testing periods.

vi. Aptitude tests: These tests are designed to measure students' ability to learn a particular language or language skill, based on factors such as cognitive ability, motivation, and learning style.

vii. Criterion-referenced tests: Rather than comparing students to one another, these examinations gauge students' performance about a set of established norms or criteria.

viii. Norm-referenced tests: These tests are designed to measure student's performance relative to others in their peer group, usually by comparing scores to a standardized sample.

The Heaton's Testing Score also employs a variety of language assessment types, including formative assessment, which provides ongoing feedback to the student and teacher throughout the learning process, and summative assessment, which measures the student's overall language proficiency at a specific point in time. The creation of Heaton's Testing Score took into account several language testing methodologies. The communicative language assessment strategy is one method that focuses on evaluating the students' proficiency with language in authentic contexts. The components that make-up Heaton's Testing Score evaluate the students' proficiency with language in a range of communicative circumstances.

Heaton (1990) has identified six important points that should be considered when interpreting test scores. These points are as follows:

a. The test's objective: When evaluating the test results, the test's objective should be taken into account. For instance, the score should be interpreted in reference to the language skill being measured by the test, such as reading comprehension.

b. The mean and standard deviation: The test results mean and standard deviation can tell us how well the group did on the exam. The standard deviation shows the range of results around the mean, whereas the mean score displays the average performance.

    c. The range of scores: The range of scores can provide information about the spread of scores within the group. A wide range of scores suggests that the group has a diverse range of abilities, while a narrow range of scores suggests that the group has similar abilities.

    d. Test reliability: When interpreting the results, test reliability should be taken into account.   If a test regularly captures the variables it is designed to, then it is regarded as dependable.

    e. Test validity: When analyzing the results, test validity should also be taken into account. If a test yields the results it was designed to yield, it is deemed legitimate.

    f. The test's context: When evaluating the results, it is important to take the test's context into account. The motivation of the student, test anxiety, or comfort with the test format, for instance, could have an impact on the test results.

The difficulty of the texts, their applicability to the student's interests and experiences, and the presence of authentic language use were all taken into account when choosing texts and creating test items. An introduction, a description of the test design and development process, an analysis of the test results, and a discussion of the significance of the results for language instruction and assessment make up the framework of the test. This study's main goal is to investigate how well Heaton's Testing Score (HTS) works as a diagnostic tool for pinpointing language proficiency gaps among Amaano Boarding School's grade 10 English language learners. To achieve this objective, the study aims to:

    i. Determine Language Competency: Using Heaton's Testing Score, determine the language competency of Amaano Boarding School's grade 10 English language learners, taking into account language abilities including grammar, vocabulary, reading, writing, and speaking.

    ii. Identify Difficulty Areas: Focus on reading comprehension, vocabulary, and grammar as the main areas of difficulty that students experience as they learn a new language.

    iii. Identify the Root Causes of the Issues: Look into the underlying causes of the language learning issues that have been identified, taking into account things such as a lack of exposure to English outside of the classroom.

2. Literature review

2.1. Heaton's testing score as a diagnostic tool

Heaton's Testing Score (HTS) is a standardized language assessment tool used to identify language learners' strengths and weaknesses. HTS is designed to measure language proficiency across various language skills. HTS's utility extends beyond screening language proficiency, as it can also serve as a screening tool for identifying English language learners who may require additional language support and predicting academic success for English language learners. HTS has proven to be a valuable diagnostic tool for language assessment, assisting educators in identifying language learners' specific strengths and areas for improvement. Assessment constitutes a crucial component of the educational process, facilitating learners in the identification of areas where they may have previously encountered challenges while concurrently affording educators the opportunity to discern strategies for enhancing subsequent lessons to optimize the learning experience" (Chastain, 1988).

One of HTS's notable strengths is its applicability as a screening tool for English language learners (ELLs). In diverse educational settings worldwide, ELLs are a prominent demographic, often facing unique challenges in their language development. HTS assists educators in identifying ELLs who may require additional language support, allowing them to implement tailored strategies that address individual needs effectively. This proactive approach not only fosters language acquisition but also bolsters the academic success of these students, ensuring that they are better equipped to meet the challenges of an English-medium curriculum. Beyond aiding in identifying language learners' areas for improvement, HTS offers a promising avenue for predicting academic success among ELLs. By analyzing the test results and understanding the specific linguistic challenges students face, educators can develop targeted interventions. These interventions may encompass personalized language support, additional resources, and differentiated teaching strategies. As a result, ELLs can more effectively navigate the academic landscape, overcoming language barriers and excelling in their studies.

Furthermore, HTS plays a pivotal role in promoting data-driven decision-making in education. It equips educators with concrete evidence of students' language skills, facilitating a more precise and responsive approach to teaching. By tailoring their instructional methods based on HTS results, teachers can provide a learning experience that is better aligned with the linguistic needs of their students. This data-driven approach also benefits school administrators and policymakers, as it allows for the allocation of resources and support where they are needed most, ultimately enhancing the overall educational experience for language learners. In this way, HTS transcends its role as a mere diagnostic tool and becomes a catalyst for educational advancement and equity in language acquisition.

2.2. English Language Learners

Students whose first language is not English are known as English Language Learners (ELLs), and they have particular difficulties in acquiring and using the language. ELLs encounter challenges in acquiring language proficiency, understanding subject-specific content presented in English, and participating in classroom discussions. Educators and schools play a vital role in supporting ELLs' language development and academic progress by implementing appropriate language support programs, culturally responsive teaching practices, and involving ELLs in content-based language instruction. Providing tailored language support, creating inclusive learning environments, and acknowledging the cultural diversity of ELLs are vital in ensuring their successful language acquisition and academic integration. In contrast

to investigations involving native English-speaking students, research on English Language Learners (ELLs), as exemplified by the works of El ley (1991) and Tharp (1982), has demonstrated that heightened exposure to English text yields favorable outcomes with regard to the word reading proficiency of young ELLs.

English Language Learners (ELLs) represent a diverse group of students, each with their unique linguistic and cultural backgrounds. This diversity among ELLs necessitates a customized approach to language acquisition and academic integration. Educators must be cognizant of the fact that language proficiency does not happen overnight. It is a gradual process that requires patience, dedication, and consistent support. Understanding the unique needs of each ELL student is crucial in addressing their language challenges effectively. This individualized approach is an essential component of a successful ELL program.

In addition to the language barriers ELLs face, they must also grapple with the daunting task of comprehending subject-specific content presented in English. This can be especially challenging in subjects like science, mathematics, or social studies, where complex vocabulary and concepts can be overwhelming. To help ELLs overcome these obstacles, teachers should employ content-based language instruction strategies. These strategies integrate language learning with the content being taught, making it more accessible and comprehensible for ELLs. This approach not only aids in language acquisition but also promotes academic achievement. Creating an inclusive learning environment is another critical aspect of supporting ELLs. When ELLs feel accepted and valued in the classroom, their motivation to learn English and engage in class discussions is significantly enhanced. Culturally responsive teaching practices play a pivotal role in making ELLs feel included and recognized. These practices acknowledge and respect the cultural diversity of ELLs, providing a more holistic and empathetic approach to education.

English Language Learners face a unique set of challenges when it comes to acquiring language proficiency and integrating into the academic environment. Educators and schools must adapt to these challenges by providing tailored language support, content-based instruction, and creating inclusive and culturally responsive classrooms. This approach ensures that ELLs have the best possible chance to succeed in their language acquisition and academic journey, ultimately contributing to their overall development and success in the education system.

2.3. Difficulties in the English Language

Learning the English language presents numerous challenges for language learners, particularly those who are non-native speakers. Common difficulties faced by language learners include mastering English grammar, vocabulary acquisition, reading comprehension, writing proficiency, speaking confidently and accurately, psychological barriers, and cultural differences. Addressing these difficulties requires a holistic approach to language teaching and support, including learner-centered strategies, encouraging authentic language use, and fostering a positive and supportive learning environment. Sumarsono (2014) posited that an effective test should ideally exhibit a proportion of 1:2:1 for its items categorized as easy, moderate, and difficult.

One of the major challenges in learning English is mastering its intricate grammar rules. English grammar is notorious for its irregularities, exceptions, and complex tense structures. For non-native speakers, understanding and applying these rules accurately can be quite daunting. Common issues include differentiating between verb tenses, using articles correctly, and forming complex sentences. To overcome these challenges, learners may need extensive practice and guidance, such as interactive exercises, grammar drills, and feedback from teachers or language partners. The English language is widely instructed across the globe for diverse educational objectives (Beleta & Kebede, 2022). Vocabulary acquisition is another significant hurdle. English boasts a vast lexicon with a multitude of words and phrases, many of which can have subtle differences in meaning. Learners often grapple with finding the right words for specific contexts and may struggle with idiomatic expressions and phrasal verbs. Building a rich vocabulary requires consistent effort and exposure to diverse reading materials, conversations, and language immersion opportunities.

Reading comprehension and writing proficiency also pose difficulties for learners. Comprehending complex texts, especially academic or technical materials, can be challenging due to unfamiliar vocabulary and intricate sentence structures. Additionally, producing coherent and well-structured written content in English can be demanding, especially for learners who are not used to the language's writing conventions. Addressing these challenges necessitates extensive reading practice, comprehension strategies, and writing exercises, along with constructive feedback and guidance from teachers.

Another set of challenges includes speaking confidently and accurately in English. Pronunciation, intonation, and accent variation can make it difficult for learners to be easily understood. Moreover, the fear of making mistakes or feeling self-conscious can impede their ability to speak fluently. Psychological barriers, such as anxiety and fear of judgment, can hinder progress. Overcoming these difficulties often requires regular speaking practice, conversation with native speakers or proficient users, and cultivating a supportive learning environment that encourages risk-taking and mistakes as part of the learning process. Cultural differences may also affect communication, as learners adapt to different norms and etiquette in English-speaking countries. In sum, addressing these multiple challenges in English language learning demands a well-rounded approach that combines linguistic instruction, cultural awareness, and psychological support to empower learners to succeed in their language acquisition journey.

3. Research methodology

To fully grasp the research aims, this study uses a mixed-approaches strategy that combines both qualitative and quantitative methods. While using quantitative approaches to provide research outcomes through statistical analyses, the study uses a qualitative approach to explore research ideas descriptively. This method has the benefit of combining the best aspects of each, enabling a thorough analysis of the background, processes, interactions, attitudes, and results. The

statistical display of data were made easier with the help of SPSS or Jamovi software, which provides both summary statistics and nuanced descriptions of the environment.

In this research, qualitative methodologies assume a pivotal role, representing an integral element of the study's research design. Their primary function resides in facilitating an exhaustive exploration of research paradigms and phenomena through the lens of non-numeric data. These methodologies are specifically tailored to effectuate a profound investigation into the multifaceted dimensions of the Grade 10 English language learners' experiences, perceptions, and behaviors at Amaano Boarding School. Unlike their quantitative counterparts, which predominate in their reliance on numerical data and statistical analyses, qualitative approaches are predominantly concerned with capturing the intricate, nuanced, and inherently subjective facets that constitute the language proficiency journey experienced by the participants. In stark contrast to the quantitative methodologies, which find application in the administration of language competency examinations and employ statistical software such as SPSS and Jamovi, qualitative methodologies enable a holistic vantage point from which to scrutinize the rich tapestry of the participants' narratives and insights. These methodologies provide an expansive canvas for the exploration of the participants' experiential accounts. Concurrently, the research incorporates quantitative techniques for the collection and analysis of data germane to language proficiency, underpinned by metrics of central tendency (mode, median, mean) and measures of dispersion (range, standard deviation) to derive insights from the corpus of numerical data.

The study's pilot group consisted of 20 ELLs in Grade 10 at Amaano Boarding School who doubled as the study's participants. The selection of Amaano Boarding School as the research location was informed by its easy accessibility and the presence of English language learners. The participants, who made up the student cohort, took part in the evaluation of language abilities, including speaking, reading, writing, listening, and using grammar and vocabulary. A variety of exam formats, including multiple-choice, gap-filling, and answer identification, were used to thoroughly assess the pupils' language skills. Reading received 10 points, Grammar and Structure received 20, Listening and Speaking received 10 points, and Writing received 10 points out of a possible 50 total.

The population subject to investigation comprises 20 students enrolled in Grade 10, typically within the age bracket of 15 to 16 years. Significantly, these students present a spectrum of English language proficiency, delineating them as English language learners. Notably, the population exhibits cultural diversity, with predominant employment of the Somali language and limited exposure to external cultural influences, thereby potentially impinging upon their English language learning process. Additionally, a substantial proportion of these learners initiated their acquaintance with the English language commencing in Grade 4, establishing this as a formative aspect of their educational background. Furthermore, the residential status of the learners varies, with some residing as boarders and others as day scholars, a dimension that may bear implications for their English language proficiency. Finally, the study's sample demonstrates gender balance, incorporating an equal representation of 10 female and 10 male participants, thus ensuring a gender-inclusive portrayal of the Grade 10 English language learner population at Amaano Boarding School.

The study methodologically adopts a random sampling approach as a means to select a representative sample of Grade 10 students. The selection of participants via randomization is a methodological choice grounded in the objective of minimizing bias and ensuring that the sample is reflective of the diversity and inherent characteristics of the comprehensive population of Grade 10 English language learners at Amaano Boarding School in Hargeisa, Somaliland. The study's data sources include both primary and secondary data. Primary data were gathered by giving language competency examinations to Amaano Boarding School pupils in Grade 10. To guarantee the accuracy and dependability of the results, the tests were meticulously planned and carried out in a controlled setting. To preserve uniformity and impartiality in the data collection, the researcher, a professional teacher, carried out the test administration and marking process following clear and consistent criteria.

For analysis, secondary data sources were also used in addition to primary data. The statistical analysis methods, such as frequency distribution, measures of central tendency (mode, median, mean), measures of dispersion (range, standard deviation), and were informed by pertinent literature, such as Heaton's "Writing English Tests" (Chapter 11). This study used a mixed-methods approach to data analysis. To give a thorough grasp of the background, procedures, and interactions, narrative data derived from the descriptive examination of research ideas were reviewed and presented. On the other side, statistical analysis was done on quantitative data from the language proficiency exams using SPSS or Jamovi software. Measures of central tendency, dispersion, and item analysis were used to provide comprehensive descriptions of each exam component, while summary statistics were constructed to evaluate the student's overall performance. With the help of a mixed-methods study, specific areas for development in the student's language proficiency were identified. By employing this integrated approach, the study sought to achieve a comprehensive and accurate assessment of the Grade 10 students' language proficiency, leveraging the strengths of both qualitative and quantitative methods to inform the research outcomes effectively.

4. Findings and discussions

The researcher plans to use SPSS and Jamovi apps to analyze data that was collected from students' examination papers. The six aspects of Heaton's (1990) theory, which is the topic of this paper, are as follows:

    i.   frequency distribution
   ii.   central tendency measurements
  iii.   dispersion measures
  iv.   item analysis
   v.   moderating
  vi.   item cards and banks

vii. item analysis

However, just four points were taken into account for data processing and analysis in this study, and they are as follows:
   i. Finding the frequency distribution
   ii. Central tendency measures, such as mean, median, and mode
   iii. Dispersion measures (like range and standard deviation)
   iv. Item analysis

Additionally, the students' test result data were presented in the form of their names and the correct answers to all 50 questions. By interpreting the data from the examples below, we can draw the following conclusions and have the following discussions. The table below shows the outcomes of the pilot test for English language learners using Heaton's testing score. Twenty students took the test, and the results ranged from 28 to 48 out of 50. With a standard deviation of 6.09 and a mean score of 39.45.

A summary of the students' test-day performance is given by the statistical data offered in the results section. The range of results points to a large disparity in the student's abilities, with certain students performing noticeably better than others. The group did well, as evidenced by the average score of 39.45 but still needs improvement. It is vital to take into account the test's design and implementation in order to assess the test's effectiveness in attaining its goals. The four language abilities of listening, speaking, reading, and writing are evaluated using Heaton's testing score, a commonly used metric in the field of English language learning. With the use of tailored feedback, the test seeks to pinpoint the areas in which students' language proficiency needs to be improved.

The findings of the pilot exam indicate that it was successful in identifying the areas in which students' language proficiency needs to be strengthened. According to the students' range of scores, some had difficulties with certain language abilities, such as reading or writing, while others did well in these domains. Therefore, the test has succeeded in its investigation in the areas of the learner's improvement. The students' unfamiliarity with the test's format or its particular material may have contributed to any issues that sprang up throughout the test. Some students may have struggled to keep their focus and concentration during the test's duration, which may have contributed to their lower marks.

The limited sample size of only 20 students, which might not be indicative of the greater population of English language learners, is one of the study's limitations. A more thorough evaluation of the students' ability might necessitate additional testing as the pilot research may not have examined all facets of their language proficiency. In a nutshell, the pilot test using Heaton's testing score has provided useful information on the English language learners' abilities and areas for improvement. Further testing with a larger sample size and a more comprehensive testing format may be required to obtain a more accurate assessment of the student's language skills. The data regarding the students' test results were presented in the following format: the students' names along with the accurate responses to the 50 questions.

Table 1: Students scores (out of 50)

NO.	STUDENT'S NAME	SCORE (OUT OF 50)
1	Student C	45
2	Student K	40
3	Student O	36
4	Student T	28
5	Student P	35
6	Student S	29
7	Student D	45
8	Student L	40
9	Student N	36
10	Student Q	32
11	Student A	48
12	Student H	43
13	Student J	42
14	Student R	30
15	Student M	39
16	Student E	45
17	Student F	44
18	Student I	42
19	Student B	46
20	Student G	44

4.1. Frequency distribution

A dataset's frequency distribution uses statistics to show how frequently certain values or ranges of values appear. A table or graph often displays the frequency or count of each value or group of values in a data set. Large volumes of data can be summarized using frequency distributions to spot patterns or trends. Frequency distributions can be displayed in a variety of ways, such as histograms, bar charts, and frequency polygons. These graphic representations can aid in highlighting data patterns. You may compute summary statistics like the mean, median, and mode using frequency distributions. They are a crucial tool for data analysis in various sectors.

Table 2: Ranking of the students' score

STUDENT'S NAME	SCORE(OUT OF 50)	RANK
Student A	48	1
Student B	46	2
Student C	45	3
Student D	45	3
Student E	45	3
Student F	44	6
Student G	44	6
Student H	43	8
Student I	42	9
Student J	42	9
Student K	40	11
Student L	40	11
Student M	39	13
Student N	36	14
Student O	36	14
Student P	35	16
Student Q	32	17
Student R	30	18
Student S	29	19
Student T	28	20

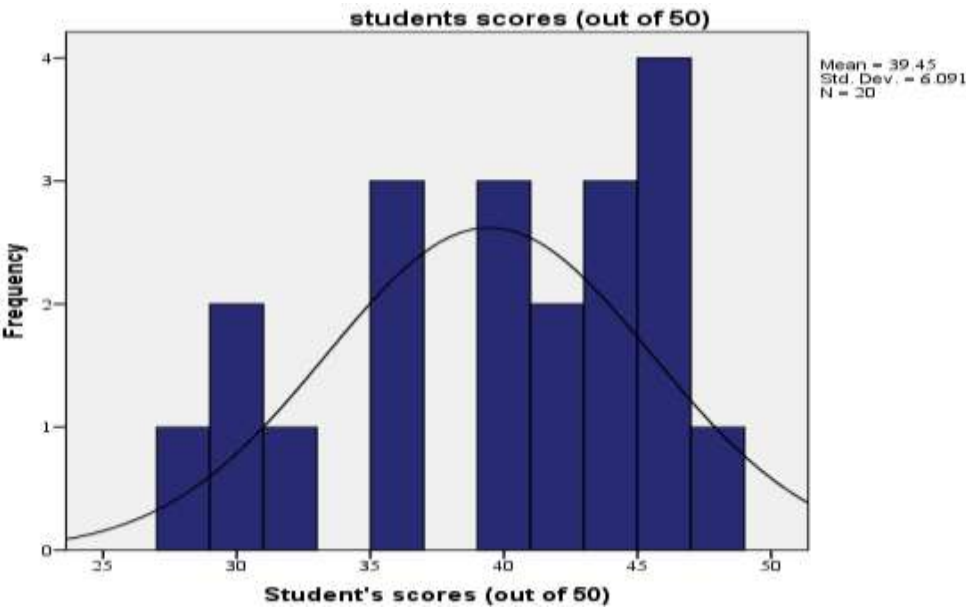Mean = 39.45
Std. Dev. = 6.091
N = 20

Figure 1: Description statistics in the Frequency distribution of the students' scores (X/ 50)

Chart 1. Frequency distribution of the correct score

The SPSS application has been used to calculate the frequency distribution of the students' scores (out of 50). The figure shows that the most dominant score among the highest scores achieved by students is 45, which occurs with a frequency of 3.

Table 3: Categories level of the total score of students

Recode Total Score

Score Range	Frequency	Percent Valid	Percent Cumulative
<35	4	16.7	16.7
35-50	16	58.3	75
Total	20	100	100

The table presented provides an analysis of the students' score ranges. Among the 20 students included in the analysis, 4 students (16.7%) obtained scores below 35, falling within the lower score range. The majority of students, 16 (58.3%), achieved scores within the range of 35-50. The table presents data on the level of total scores achieved by a group of students. The data is presented in four columns: Score Range, Frequency, Percent Valid, and Cumulative Percent.

There are two categories of score ranges presented in the table: scores below 35 and scores between 35 and 50. The first category includes scores less than 35, and the second category includes scores between 35 and 50. The number of students who achieved scores in each area is shown in the "Frequency" column. The data shows that 16 students received scores between 35 and 50, while four students received scores below 35. The percentage of students in each category is shown in the "Percent Valid" column. According to the table, 58.3% of students received scores between 35 and 50, while 16.7% of students received scores below 35.

The "Cumulative Percent" column indicates the cumulative percentage of the students who have achieved scores up to a particular score range. According to the table, 16.7% of the students achieved scores below 35, and 75% of the students achieved scores between 35 and 50. Overall, the table provides information on the distribution of scores achieved by a group of students, with the majority of students (75%) achieving scores between 35 and 50.

4.2. Measures of central tendency

Statistics that represent the most typical or common value in a dataset are known as measures of central tendency. The mean, median, and mode are the three most frequently employed measurements of central tendency. Each measure is succinctly summarized below, along with David Heaton's thoughts on each:

1. Mean: The mean is calculated by dividing the total number of values in a dataset by the number of values. Extreme values and outliers have an impact on it.

"The mean is a delicate indicator of central tendency that is susceptible to the effects of extreme values. It is good for data with a normal distribution, but it might not be the optimal measurement for data with skewed distributions or outliers" (Heaton, 2004).

2. Median: When a dataset's values are ranked from lowest to highest, the median is the midpoint number. Extreme values and outliers have less of an impact on it.

David Heaton (2004), "The median is a robust measure of central tendency that is less sensitive to extreme values. It is appropriate for skewed distributions or data with outliers."

3. Mode: The value that appears the most frequently in a dataset is the mode. It can be applied to category or nominal data.

The mode is a good indicator of central tendency for nominal or categorical data, according to David Heaton (2004). Although less popular, it can also be used for continuous data. The mode is less accurate than the mean, but it is less sensitive to high values.

Table 4: Measures of central tendency

Descriptive Statistics

Students' scores (out of 50)		
N	Valid	20
	Missing	0
Mean		39.45
Median		41.00
Mode		45
Std. Deviation		6.091
Variance		37.103
Skewness		-.617
Std. Error of Skewness		.512

Range	20
Minimum	28
Maximum	48
Sum	789

The table displays a summary of the students' scores (out of 50) with various statistics. Out of the 20 valid scores analyzed, the mean score is 39.45, representing the students' average performance level. The median score of 41.00 indicates that half of the students achieved scores equal to or higher than this value. The mode score of 45, which appears most frequently, highlights a concentration of scores around this value. This suggests that a significant number of students achieved scores equal to or higher than this value. The scores' variance, or average squared deviation from the mean, is 37.103, which is equal to the square of the standard deviation. The score range of 20, which ranges from a minimum of 28 to a maximum of 48, displays the entire range of results. These statistics offer a thorough knowledge of the students' performance by revealing information on the central tendency, dispersion, and range of their results.

The distribution of scores is slightly skewed to the left, as indicated by the negative (-0.617) skewness of the scores. This indicates that the majority of the scores fall in the higher range. The estimated skewness standard deviation is 0.512, which is the standard error of skewness. The gap between the highest and lowest scores is 20, making the range of the scores 20. The minimum and highest scores are 28 and 48 respectively. The total score earned by all of the pupils when the scores are added together is 789.

Overall, according to the statistics, the students did reasonably well, with the majority of them getting higher than the mean score of 39.45. However, the scores still show some variation, and some students may have had difficulty performing well, as seen by the relatively large standard deviation and negative skewness.

4.3. Measures of dispersion

A commonly used statistical tool that sheds light on the distribution or dispersion of data in a dataset is the standard deviation. Karl Pearson first presented it in 1894. It gauges how far the data points are from the median or average of the data. Roughly 95% of the data points in a normal distribution, which is a bell-shaped curve, are within two standard deviations of the mean and roughly 68% are within one standard deviation of the mean. As a result, the standard deviation can be used to compare and analyze data sets.

By computing the variance's square root, the standard deviation is determined. The variance is the sum of the squared departures from the mean of each data point. The standard deviation, which is expressed in the same units as the data, can be obtained by calculating the square root of the variance. Numerous real-world uses for the standard deviation may be found in a wide range of disciplines, including economics, engineering, and social sciences. It can be used to gauge the volatility of social and behavioral data as well as analyze the risk of investments and the dependability of manufacturing processes. Below are some significant characteristics of the standard deviation to keep in mind as you utilize it as a tool for statistical analysis:

i. There is never a negative standard deviation. Since it measures how far data are from the mean, it cannot be less than zero.

ii. Outliers might affect the standard deviation. Data points that are far from the other data points are known as outliers. Outliers can significantly affect the standard deviation because the standard deviation is dependent on the variances between each data point and the mean.

iii. You can evaluate assumptions about the population mean using the standard deviation. The standard deviation can be used to determine a confidence interval for the mean, for instance, if we have a sample of data and want to determine whether the population mean is equal to a particular value.

iv. The normal distribution and the standard deviation are connected. The bell curve's shape in a normal distribution is determined by the mean and standard deviation. It is possible to determine the likelihood of observing a specific value or range of values if we are aware of the mean and standard deviation of a normal distribution.

Table 5: Measures of dispersion

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SCORE_OUT_OF_50	20	28	48	39.45	6.091
Valid N (listwise)	20				

The "N" column lists the dataset's total number of observations, which in this case is 20. The "Minimum" and "Maximum" columns list the variable's smallest and biggest recorded values, respectively. The lowest score obtained was 28, and the maximum score was 48, according to the data.

The "Mean" column displays the overall average score, which in this case is 39.45. Last but not least, the "Std. Deviation" column shows how variable the scores are, especially how much they deviate from the mean. The scores vary from the mean by an average of 6.091 points, which is the value of the standard deviation. The information as a whole reveals that the students' English test results were rather well distributed, with a difference of 20 points between the lowest and greatest scores. The standard deviation shows that there was some variation in the scores, and the average score was just under 40.

4.4. Item analysis

The importance of item analysis in assessing the validity and reliability of tests was emphasized (Cronbach, 1951). Identifying items that are too easy or difficult or unrelated to the construct being tested, according to him, can be done with the use of item analysis.

Frequently missed questions	
Question	**Correct Responses**
3. How is the text organized? Identify the sequence of events in Bruce's morning routine.	**5/20**
8. What is the synonym for "consequences" as used in the text?	**4/20**
10. What can you infer about Bruce's parents based on their morning routine?	**8/20**
22. Max [0%] _____ wants to work.	**3/20**
20. She don't want to go to the party tonight.	**7/20**
25. prophet	**2/20**
27. days	**1/20**
30. Have you discarded all the kitchen **refuse**?	**6/20**
33. You don't have to **project** your anger on that riffraff.	**4/20**

Table 6: Categories of item analysis using recode SPSS
Recode correct scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<10	7	16	16.0	16.0
	17-Nov	13	26.0	26.0	42.0
>18		29	58.0	58.0	100.0
Total		**50**	**100**	**100**	

The table provides information on item analysis using recode in SPSS for a set of data. Specifically, it shows the frequency and percentage distribution of the recoded correct scores in different categories. Based on the recoded accurate scores, the data is separated into three groups: "10," "17-Nov," and ">18." The frequency of the "10" category is 7, or 16% of the entire sample. The frequency for the "17-Nov" category is 13, or 26% of the entire sample. The frequency of the ">18" group is 29, or 58% of the entire sample. The percentage distribution of the recoded accurate scores for each category is shown in the "Valid Percent" column. Since all 7 occurrences fit within the "10" category, the valid percent is 100%. 13 examples fit into the "17-Nov" category, making the valid percentage for this category 100%. The ">18" category includes all 29 examples, making the eligible percentage for this category 100%.

The "Cumulative Percent" column represents the cumulative percentage distribution of the recoded correct scores across all categories. For example, the cumulative percent for the "<10" category is 16%, which represents the percentage of cases with a recoded correct score of less than 10 or lower. The cumulative percent for the "17-Nov" category is 42%, which represents the percentage of cases with a recoded correct score of 17 or lower. Finally, the cumulative percent for the ">18" category is 100%, which represents the percentage of cases with a recoded correct score of greater than 18. Overall, the table provides a summary of the recoded correct scores in different categories, allowing for a quick understanding of the distribution of scores and the proportion of cases falling into each category.

The researcher in above Table 6 attempted to use the SPSS method to recode various variables and determine the total number of questions (50 items). It was discovered that 8 questions fell under the difficult category because fewer than 10 students answered them correctly, which was evident from Figure 2. The figure showed a significant lack of correct responses to these questions. Lord (1952) proposed the concept of item response theory, which is a widely used method for analyzing test items. He argued that item analysis can be used to improve the quality of tests by identifying problematic items and improving the overall measurement of the construct being tested. On the other hand, Ebel (1979) argued that item analysis is a critical component of test development and validation. He suggested that item analysis

should be used to evaluate the psychometric properties of test items, including their difficulty, discrimination, and reliability.

5. Contributions, Implications, and Recommendations of the study

This study constitutes a significant contribution to the domain of English language education and assessment, as it undertakes an evaluation of the utility of Heaton's Testing Score as a diagnostic instrument for individuals seeking to enhance their proficiency in the English language. Employing a methodological synthesis of both qualitative and quantitative research paradigms, the investigation discerns specific hurdles encountered by English language learners in the domains of reading comprehension, vocabulary acquisition, and grammatical competence. Furthermore, it provides illuminating insights into the underlying causative factors contributing to these difficulties.

The study underscores the critical import of tailored interventions and augmented exposure to the English language beyond the classroom setting. It also underscores the recommendation for the regular integration of diagnostic assessments into language learning programs. These empirical findings hold significant implications for stakeholders within the realm of education, including educators, policy-makers, and curriculum developers. The knowledge garnered from this research empowers them to ameliorate the quality of language instruction, reconsider extant policies, and devise instructional materials that are specifically geared toward ameliorating the aforementioned linguistic challenges. In the final analysis, the overarching goal of this research is to enhance the learning experience and proficiency levels of English language learners.

6. Conclusion

This study focused on the use of Heaton's Testing Score (HTS) as a diagnostic tool to identify areas where English language learners in grade 10 at Amaano Boarding School could improve. The study utilized both qualitative and quantitative techniques, including the HTS questionnaire, a focus group interview, and statistical applications like SPSS and Jamovi, to gather and analyze data. The findings showed that students had difficulties with reading comprehension, vocabulary, and grammar. The study's results imply that Heaton's Testing Score can be a useful diagnostic tool for identifying English language learners' areas for development. The study highlights the significance of identifying English language learners' particular areas of difficulty to provide tailored remedies that can aid in their improvement.

The study also showed that the Heaton Testing Score is a reliable and valid tool for assessing language proficiency and identifying specific areas that need improvement. In-depth analysis of context, procedures, and interactions, as well as a precise evaluation of attitudes and results, were all made possible by the use of mixed-methods research. The results can be utilized to inform and steer instruction rather than just evaluating students' performance at the conclusion of a unit or course, which has important implications for language teaching and evaluation. The Heaton Testing Score can be used as a criterion-referenced test to compare student performance to a set of established standards or criteria, giving both the student and teacher ongoing feedback as the learning process progresses. Overall, this study offers insightful information about using Heaton's Testing Score as a diagnostic tool to pinpoint English language learners' areas for development.

7. Funding

Acknowledgments

Appendix
Grade 10 Formative Test

English Formative Test
10th Graders

Name: _____Date: _____

Reg. No. _____

Total of points: _____/50pts.

General Directions:
- ✓ Carefully read each statement before answering.
- ✓ Do not overwrite, cross out, or use liquid paper.

✓ By the end, the test must be neat and clean.

✦ **Section A: Reading Comprehension**

Choose the correct answer, A, B, C, or D, to answer the questions.

Bruce is a student at a secondary school. Both of his parents work, and they go to work very early. They usually prepare breakfast for Bruce and leave home before Bruce wakes up. Bruce forgot the set the alarm yesterday, so he woke up late this morning. He didn't wear his uniform because it was dirty. He left home without having breakfast and went to school. He was late, and he missed the first lesson. He knocked on the door of the classroom and opened it, but there wasn't anybody inside. He took his seat and started to wait for his friends. He waited about half an hour, but nobody came. He looked out of the window and saw his friends. They were in the garden. He went out of the classroom and started to run. He wasn't careful enough so he fell down the stairs. He felt a sharp pain in his left leg and tried to move it, but he couldn't. Because it was broken.

(Adapted from https://www.elt-els.com/2019/03/reading-comprehension-multiple-choice.html)

1. What is the main problem faced by Bruce in the story?
A. Bruce forgot to wear his uniform to school.
B. Bruce woke up late and missed the first lesson.
C. Bruce fell down the stairs and broke his leg.
D. Bruce's parents go to work early.

2. What are the consequences of Bruce waking up late and missing the first lesson?
A. He had to wear dirty clothes.
B. He had to wait for his friends in the classroom.
C. He fell down the stairs and injured his leg.
D. He missed out on important learning.

3. How is the text organized? Identify the sequence of events in Bruce's morning routine.
A. Chronological order
B. Cause and effect
C. Problem and solution
D. Compare and contrast

4. What did he do when he saw his friends in the garden?
A. He started to wait.
B. He left home without having breakfast.
C. He shouted at them.
D. He went out of the classroom and started running.

5. Why didn't Bruce wear his uniform to school?
A. It was torn.
B. It was too small.
C. It was dirty.
D. It was lost

6. What did Bruce see when he looked out of the classroom window?
A. His friends in the garden.
B. His parents waiting outside.
C. His teacher approaching the classroom.
D. A broken windowpane.

7. In the sentence, "He took his seat and started to wait for his friends," who does "he" refer to?
A. Bruce
B. Bruce's friend
C. Bruce's teacher
D. Bruce's parent

8. What is the synonym for "consequences" as used in the text?
A. Rewards
B. Benefits
C. Outcomes
D. Experiences

9. Why do you think Bruce's friends were in the garden instead of the classroom?
A. They were playing a game.
B. They were waiting for Bruce.
C. The classroom was too hot
D. The teacher told them to go outside.

10. What can you infer about Bruce's parents based on their morning routine?
A. They don't care about Bruce.
B. They have demanding jobs.
C. They are always late.
D. They prepare breakfast for themselves.

✦ **Section B: Grammar and Structure.**

Part 1-Completing Sentences

11. _____ did you learn about this school?
a. Who
b. Whom
c. Whose
d. How

12. I _____ go to bed before 11 p.m.
a) ever
b) slowly
c) foremost
d) usually

19. _____ much did she pay?
a. What
b. How
c. When
d. Where

20. _____ did you have for dinner?
Which
When
What
Whom

13. I [30%] _____ go to bed late.
a)   never
b)   occasionally
c)   always
d)   seldom

14. They_____ ice cream.
a)   is eating
b)   are eating
c)   am eating
d)   has eaten

15. _____ we go swimming in the lake.
a)   Sometimes
b)   Never
c)   Rarely
d)   Sadly

16. _____ won the game?
a)   What
b)   When
c)   Who
d)   Where

17. I _____my house.
a)   is painting
b)   are painting
c)   painting

d)   am painting

18. She …………………………….English.
a)   is studying
b)   studying
c)   are studying
d)   have study

21. It was_____ heavily on Wednesday.
 raining
 is raining
 are raining
 rained

22. Max [0%] _____ wants to work.
a)   never
b)   always
c)   sometimes
d)   frequently

23. Children …………………… to school.
a)   is going
b)   am going
c)   are going
d)   was going

24. We _____ go to the cinema on Saturdays.
 a)   frequent
 b)   usually
 c)   every day
 d)   have to

25. _____ did you buy ice cream?
a.   Who
b.   What
c.   Where
d.   Whom

Part 2-Identifying the errors

Here are five sentences with errors. Your task is to identify and correct the errors in each sentence. Please provide the corrected versions of each sentence, and I'll provide feedback on your answers.

26. The students has finished their assignments early.

_____

27. She don't want to go to the party tonight.

_____

28. The book laying on the table belongs to me.

_____

29. I'm studying for my exams, but I can't concentrate because it's too noisy outside.

_____

_____

30. He runned quickly to catch the bus, but he missed it.

_____

_____

✦ **Section C. Listening and Speaking**

Task 1. Provide the homophones of the following words

31. ate _____

32. prophet _____

33. blue   _____

34. days _____

35. alter _____

Task 2. Put a stress marker where stress will manifest in the bolded words

36. The farm **produce** was low this year.

37. Have you discarded all the kitchen **refuse**?

38. To **convic**t him, you need substantial evidence in court.

39. The glass **contracts** as it cools.

40. You don't have to **project** your anger on that riffraff.

✦ **Section D. Writing.**

41. Write a personal narrative of about 100-150 words about a memorable day or event in your life.

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(ii) Marking Scheme for the Formative Test
FORMATIVE TEST
  Marking Scheme
Section A: Reading Comprehension (10 points)
  1.   B (1 point)

2. D (1 point)
3. A (1 point)
4. D (1 point)
5. C (1 point)
6. A (1 point)
7. A (1 point)
8. C (1 point)
9. A (1 point)
10. B (1 point)

Section B: Grammar and Structure (20 points)
Part 1-Completing Sentences (10 points)
11. D (1 point)
12. D (1 point)
13. B (1 point)
14. B (1 point)
15. A (1 point)
16. C (1 point)
17. D (1 point)
18. A (1 point)
19. B (1 point)
20. C (1 point)
21. A (1 point)
22. A (1 point)
23. C (1 point)
24. B (1 point)
25. C (1 point)

Part 2-Identifying the errors (10 points)
26. The students have finished their assignments early. (2 points)
27. She doesn't want to go to the party tonight. (2 points)
28. The book lying on the table belongs to me. (2 points)
29. I'm studying for my exams, but I can't concentrate because it's too noisy outside. (2 points)
30. He ran quickly to catch the bus, but he missed it. (2 points)

Section C: Listening and Speaking (10 points)
Task 1. Provide the homophones of the following words (5 points)
31. Eight
32. Profit
33. Blew
34. Daze
35. Altar

Task 2. Put a stress marker where stress will manifest in the bolded words (5 points)
36. PRO-duce
37. RE-fuse
38. con-VICT
39. con-TRACTS
40. pro-JECT

Section D: Writing (10 points)
The writing section is subjective and will be marked based on the following criteria:
- Content and organization (3 points)
- Use of descriptive language and details (3 points)
- Grammar and mechanics (2 points)
- Vocabulary and word choice (2 points)

Total points: 50 points

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