PERFORMANCE OF GEOGRAPHY TEACHERS IN THE DISCURSIVE TEST OF THE PUBLIC COMPETITION FOR TEACHERS OF BASIC EDUCATION IN THE STATE OF PERNAMBUCO

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ABSTRACT

Teacher education still faces challenges related to students' fundamental skills. A notable example is the lack of writing skills on the part of future teachers, although this is an essential competence for the profession. In this context, we sought to evaluate the performance of the textual production of graduates of the Geography course compared to other degree courses, using the grades obtained in the Essay Test (writing) of the Public Competition for the position of Basic Education Teacher in the State of Pernambuco, held in 2022. The methodological path included the tabulation of the discursive notes by area of knowledge. Statistical measures of central tendency and dispersion were calculated. Subsequently, the scores were submitted to the Kolmogorov-Smirnov normality test, to verify the hypothesis of normality of the data. Finally, the scores of the essay test of the Geography candidates were compared with the scores obtained by candidates from other courses through the Mann-Whitney test. The following degree courses participated in the event: Arts, Geography, Biology, Physical Education, Philosophy, Chemistry, Mathematics, Sociology, History, Portuguese, English, Spanish and Physics. The means and medians of all courses showed similarity, with average scores between 18.5 and 21.4 points, and medians ranging between 19.9 and 22.7, out of a total of 30 possible points. The Physical Education course had the lowest average (18.5) of the scores of the discursive test, with the highest frequency of interval of the scores between 10 and 20 points. Candidates in the Sociology course obtained the highest average of grades (21.4), with attendance concentrated in the range of 25 to 30 points. The Geography course had an average score of 20.8, a median of 21.4, and the frequency of essay scores was in the range of 20 to 30 points. Regarding the dispersion measures, it was observed that most of the courses

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presented a coefficient of variation below 30%, with the exception of the Physical Education and Mathematics courses, showing that the candidates of these courses presented very different grades. In contrast, candidates in the Geography course had similar performance scores. The result of the Mann-Whitney test confirmed that there was no significant difference between the grades of the Geography course and the grades of the other courses. These results highlight the need to seek strategies, such as the implementation of reading groups, writing workshops, among other actions, that strengthen textual production in teaching degrees.

Keywords: Textual production. Degrees. Statistics.

INTRODUCTION

Students in undergraduate courses lack writing skills, although this is one of the pillars of being a teacher (Nogaro, Porto & Porto, 2019). According to the aforementioned authors, in the academic environment it is common to observe difficulties or little ability of students in the production of simple texts, internship reports, and monographs, which is a reason for student retention for long years in undergraduate studies (Moreira & Holanda, 2021).

It is also observed that the performance of Brazilian students in reading proficiency tests is usually poor, indicating problems in basic education (Brasil, 2023).

According to Silva & Santos (2024) "the development of reading competence contributes significantly to the development of writing competence". However, according to the aforementioned authors, the school has faced difficulties in developing reading and writing skills in students, which compromises the elaboration of an argumentative text.

Nogaro, Porto & Porto (2019, p.1) state that "historically, the school has assumed as its functions to teach reading and writing, over time it has privileged reading to the detriment of writing, which means that we leave it without more significant experiences or with the ability to write".

Marquesi and Cabral (2018) point out that students, when entering the university environment, encounter challenges in adapting to scientific writing models. This is mainly because the limited writing format used in entrance exams, such as the National High School Exam (ENEM), does not fully develop the skills necessary for more complex academic production.

Academic writing requires a broader repertoire and a deeper argumentative approach, which differs significantly from the expectations of an essay structured in 30 lines and with a predetermined format. This gap in the development of writing skills limits students' performance throughout the higher education course, since they are faced with more sophisticated textual demands, which include mastery of textual analysis and synthesis techniques (Marquesi & Cabral, 2018).

In addition, the authors highlight that mastery of the "text plan" and context is crucial to overcome these difficulties. Many freshmen, who have been trained only to follow a rigid writing model, face obstacles when trying to write academic texts that require greater autonomy and critical capacity (Marquesi & Cabral, 2018).

Thus, university education needs to contemplate strategies that help these students overcome the limitations inherited from the pre-university essay format. In view of this reality, this research sought to evaluate the performance of the textual production of graduates of the Geography course in comparison with other licentiate courses, using the grades obtained in the Essay Test (writing) of the Public Competition for the position of Basic Education Teacher of the State of Pernambuco, governed by the Joint Ordinance SAD/SEE nº070, of 31 May 2022. In addition to comparing the performance of candidates in the Geography course with other degree courses.

It is hoped that this analysis will help the managers of the Geography Degree courses and other courses, to think of strategies to improve the quality of students' written communication.

TEXTUAL PRODUCTION IN UNDERGRADUATE COURSES

Brazil has historically presented a low performance in reading in the PISA assessment according to the analysis made by the "Note on Brazil in PISA 2022", several factors contributed to these worrying results. Among them, he highlights the socioeconomic inequalities that affect access to and quality of basic education, in addition to the lack of investment in school infrastructure and in the continuous training of teachers. The report points out that students from more advantaged socioeconomic backgrounds tend to obtain better results, evidencing the disparity in the Brazilian educational system. Thus, the report reveals that Brazil faces significant challenges in implementing effective educational policies.

Unsatisfactory performance in reading is associated with outdated pedagogical practices. In this way, the DAEB (Basic Education Evaluation Board) emphasizes the importance of educational reforms that promote quality education with equity for all students, regardless of their condition and origin. This difficulty, when not resolved, is being pushed to all levels of education.

As Locatelli & Pereira (2019) emphasizes that students who enter undergraduate courses due to the intense social and economic pressure for higher education, which is seen as an essential requirement for employability, people are encouraged to obtain, in the shortest possible time, a higher education diploma. At the same time, in recent decades, the lack of regulation and supervision by the responsible bodies has allowed a rapid expansion of undergraduate courses. This has become a lucrative opportunity for the

market is a viable option for many, due to the ease of access and low cost of these courses.

Gatti (2009) points out that many of these problems are a consequence of gaps in the public education system. Public schools, often overburdened and underfunded, fail to provide quality education that adequately prepares students for the academic challenges of higher education. This results in an unstable educational foundation, especially in the fundamental skills of reading, writing, and text interpretation.

Moreira and Holanda (2021) evaluated some reasons that resulted in greater student retention in Mathematics degree courses, according to the authors the main justification would be the difficulty of students in writing the monograph, associated with psychological fatigue and lack of motivation in writing the course completion work (TCC).

Diorio (2021) evaluated the difficulties faced by professors of the Pedagogy course at UFRJ in the construction of their monographs and found that these difficulties are related to academic writing and scientific research, fundamental elements for carrying out a TCC. When entering the Pedagogy course, many students encounter difficulties with academic writing, a type of writing that is unknown to them and that demands not only language skills, but also the ability to organize ideas in a logical and cohesive way.

The research by Diorio (2021) highlights that academic writing is a competence that must be developed throughout the course, through a systematic set of pedagogical actions. However, the absence of a structured and continuous teaching of this skill makes students feel insecure and insufficiently prepared for the challenging task of writing a monograph.

Marinho & Signorini (2022) presented the results of a survey of the difficulties in the sphere of reading and writing of students entering a course at Unicamp, who were not selected by the entrance exam. According to the aforementioned authors, the data presented reveal that, over the years, students have more frequently reported difficulties related to writing, including problems with punctuation, accentuation, textual organization, spelling, textual planning and argumentation.

This predominance of writing difficulties points to deficiencies in school literacy practices, which focus on preparing for standardized tests and exams, such as university entrance exams and the National High School Exam (ENEM), rather than promoting a broader and contextualized understanding of writing as a social and communicative practice. Instead of being seen only as a set of technical skills, writing should be

understood as an instrument of socialization with different audiences, influencing, expressing ideas and interacting in a meaningful way in society.

Difficulties related to reading, as reported by Marinho and Signorini (2022), have a different profile compared to writing difficulties. Although less frequent, the reading difficulties highlighted by students include significant problems with the lexicon, lack of concentration and comprehension of unfamiliar texts. These difficulties reflect a need for further development of students' interpretive and attention skills. However, it is essential to implement pedagogical practices that meet these specific needs, promoting a more structured and integrated literacy.

Alcantara *et al*. (2024) draws attention to the result of the performance of students in Geography degree courses in the General Training component in the ENADE evaluation, this setback is evident in the difficulties with textual production, construction of arguments and clarity in written communication, portraying a generalized and persistent problem in several universities, which unfortunately compromises the quality of teaching offered in undergraduate courses.

Nogaro, Porto & Porto (2019, p.2) show concern with the results "regarding the ability of basic education and higher education students to produce written texts, including stricto sensu graduate courses". Thus, writing is essential for a means of identity construction and critical thinking of the human being.

Nogaro, Porto & Porto (2019, p.3) also state that: Writing and reading are understood as social practices necessary for the formation of the subject, that is, as instruments that enable not only the insertion of the individual in different contexts (social, historical, cultural, professional), but also the ascension to others than those of their initial origin.

Thus, it becomes clear that there is a need to discuss the textual production of undergraduate graduates, with the objective of considering concrete measures in teaching degree courses that encourage reading and the creation of texts throughout the process of teacher training, as a means of improving this fundamental competence of being a teacher.

METHODOLOGY

This work is a quantitative-descriptive research. Quantitative-descriptive research "Consists of empirical research investigations whose main purpose is the delineation or analysis of the characteristics of facts or phenomena, the evaluation of programs, or the

isolation of main or key variables. Any of these studies can use formal methods, which are close to experimental projects, characterized by statistical precision and control, in order to provide data for the verification of hypotheses. All of them employ quantitative artifices with the objective of systematically collecting data on populations, programs, or samples of populations and programs" (Tripodi et al., 1975, cited by Marconi and Lakatos, 2010, p. 187).

The methodological procedures for carrying out this research were:

- Bibliographic Review: in this stage, a bibliographic survey was carried out discussing teacher training and teachers' writing skills, in order to understand the profile of teachers in these two variables;

- Data organization: The data necessary for this research were obtained from the company organizing the Public Tender. These are public data, disclosed through a public notice, which will be organized by course and GRE. The data correspond to the scores of the discursive test.

- Tabulation and data treatment: The list of grades was tabulated and measures of central tendency and dispersion were determined, using the R software. The grades were submitted to a normality test and, then, the average grade of the Geography graduates was compared with the average grades obtained by graduates of other undergraduate courses through the Analysis of Variance technique (ANOVA). allowing us to assess whether there is a significant difference in the performance of these groups.

- Data interpretation: In this final stage, the performance of Geography teachers in the discursive test was analyzed and interpreted in comparison to other teachers from different degree courses and thus possible measures were proposed from the results obtained.

RESULTS AND DISCUSSION

CHARACTERIZATION OF THE CONTEST FOR BASIC EDUCATION TEACHER IN PERNAMBUCO

According to Joint Ordinance SAD/SEE No. 070, of May 31, 2022, in view of State Law No. 14,538, of December 14, 2011, together with the deliberate authorization of resolution No. 22, of April 25, 2022, of the Personnel Policy Chamber (CPP), approves and

opens the public tender, aiming at the provision of 2,907 (two thousand, nine hundred and seven) vacancies for the position of teachers of Basic Education in the State.

The contest obtained more than 45,000 (forty-five thousand) entries throughout the state of Pernambuco, being divided among 13 (thirteen) headquarters of the Regional Managements of Education and Sports of Pernambuco (GRE). The public tender held by the State of Pernambuco aims to fill vacancies and form a reserve register in the position of teacher in the area of basic education in the state. It was carried out by the Brazilian Center for Research in Evaluation and Selection and Event Promotion (Cebraspe).

The race was held in 13 cities in Pernambuco, Afogados de Ingazeira, Araripina, Arcoverde, Caruaru, Floresta, Garanhuns, Limoeiro, Nazaré da Mata, Palmares, Petrolina, Recife, Salgueiro and Vitória de Santo Antão. 2,907 vacancies were made available for the position of teacher in the subjects of arts, biology, physical education, philosophy, sociology, geography, history, Spanish language, Portuguese language, English language, mathematics, chemistry and physics, for elementary and high school.

During the contest process there are steps to be followed, such as an objective test on general knowledge (p1) with 50 questions, an objective test with specific knowledge (p2) with 70 questions adding up to 120.00 total points. Discursive test (p3) with a maximum value of 30.00 points had as its theme "Education for sustainability as a pedagogical practice aimed at social transformation".

Then, all those approved in (p3) move on to the evaluation of titles (p4) adding up to 10.00 points with titles sent. The first three stages were of a qualifying and eliminatory nature, while the last one was qualifying.

Thus, candidates who had scores below 10.00 points in the objective test of general knowledge (p1), score 13 less than 21.00 points in the objective test of specific knowledge (p2) or with a score below 36.00 points in the set of objective tests (p1 and p2) and who were below 15.00 points in the discursive test in broad competition (p3) were eliminated from the competition.

STATISTICAL ANALYSIS OF ESSAY GRADES

After obtaining the scores from the Cebraspe examining board, the data were tabulated and processed using the R software. The total data corresponded to 11 thousand scores distributed among the different undergraduate courses. Measures of central

tendency and dispersion were calculated. The results are presented in the following table and graphs:

Table 1 - Measures of central tendency and dispersion of the essay scores of candidates for the Pernambuco Basic Education Teacher Competition of different licentiate courses

Course	Measures of central tendency and dispersion			
	Average	Median	Standard deviation	c.v(%)
Arts	19,82	20,85	6,52	32,89
Biology	21,09	22,26	5,88	27,88
Physical Education	18,52	19,29	6,77	36,55
Philosophy	20,71	21,50	5,46	26,36
Physics	20,32	21,08	5,91	29,08
Geography	20,81	21,48	5,44	26,14
History	20,57	21,51	5,89	28,63
Spanish	20,29	21,16	6,08	29,96
English	20,76	21,67	6,04	29,09
Portuguese	21,02	22,08	6,14	29,21
Mathematics	18,97	19,55	6,60	34,79
Chemistry	20,6	21,59	5,88	28,54
Sociology	21,4	22,77	5,75	26,86

Figure 1: Graph of the arithmetic averages of the essay scores of the candidates for the Pernambuco Basic Education Teacher Competition of different licentiate courses
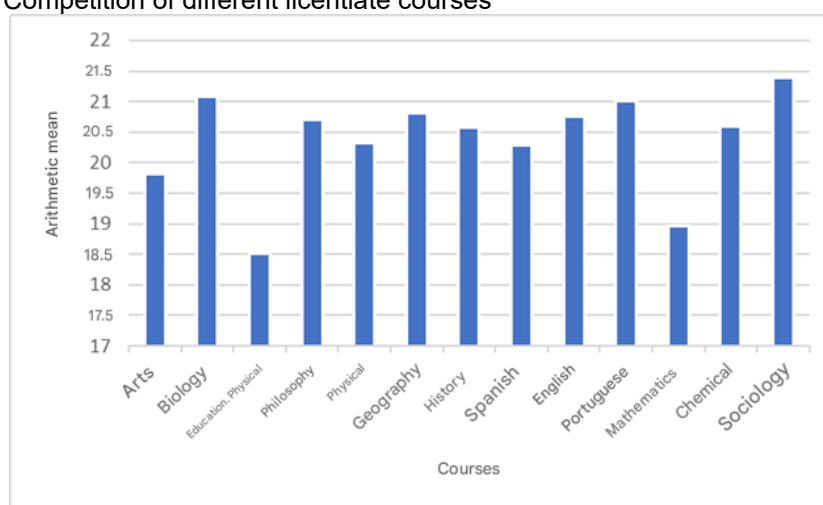
It can be seen in figure 1 that the Sociology course (21.4) obtained the highest score in the writing test, together with the Portuguese Letters course (21.02). The Physical Education course (18.52) had the lowest average of writing scores along with the Mathematics course (18.97). The Geography course presented an average score of 20.81, out of a total of 30 points. When we evaluate the median, we have some small differences, as we can see in the graph below (Fig.02).

Figure 2: Graph of the median writing scores of the candidates for the Pernambuco Basic Education Teacher Competition of different licentiate courses
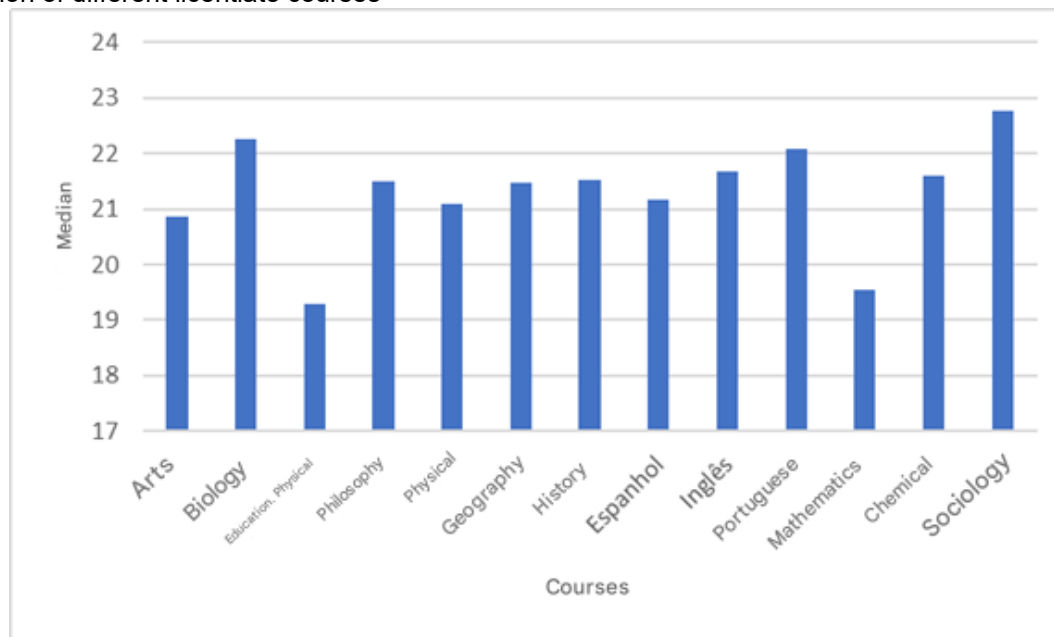
The Sociology course, as shown in the graph above, has the highest median score (22.77), followed by the Biology course (22.26) and Portuguese Languages obtained the median score of 22.8. The Physical Education and Mathematics course has the same performance as the average, with the median grades being lower. The Geography course presented a median score higher than the average of 21.48.

When we evaluate the dispersion of these data, according to the graph below, it can be seen that Sociology has one of the lowest dispersion in terms of essay grade (26.86%) (Fig.03).

Figure 3: Graph of the coefficient of variation of the essay scores of the candidates for the Pernambuco Basic Education Teacher Competition of different licentiate courses
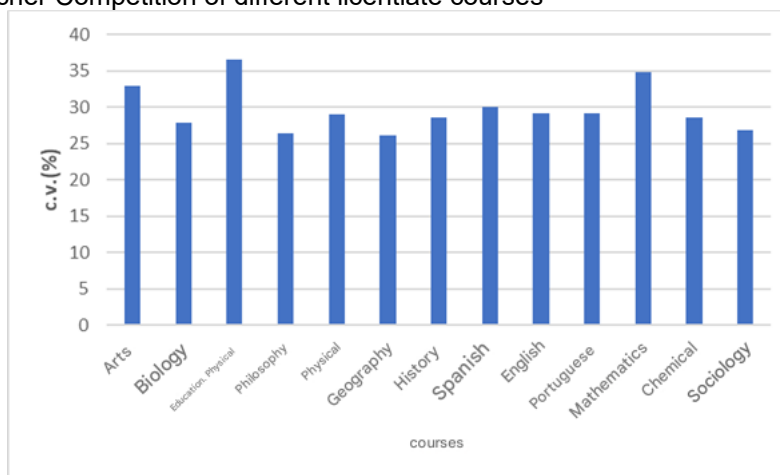
The most heterogeneous grades are in the Physical Education (36.55%) and Mathematics (34.79%) courses. The Geography course presented the most homogeneous grades with a CV of 26.14%.

With the exception of the Arts, Physical Education and Mathematics courses, the other courses presented a c.v percentage below 30%, showing the greatest homogeneity of the essay scores.

According to Freud (2006, apud Nogueira, 2019, p.14) histograms "are graphical representations of data that are separated into sets or intervals and displayed in geometric shapes according to the frequency of occurrence of each of these groups in a population".

In this work, the frequency of occurrence of grades in the Degree courses in Biological Sciences, Geography, Portuguese, English, Spanish, Chemistry, Physics, Mathematics, Physical Education, Sociology and Philosophy was evaluated.

Observing the histogram of the writing scores of the teachers of the Arts course, it can be seen that the grade interval that appears most frequently is between 20 and 25 and the Biological Sciences course between 25 and 30 (Figs. 4 and 5).

Figure 4: Histogram of the distribution of the writing scores of the candidates of the Arts course
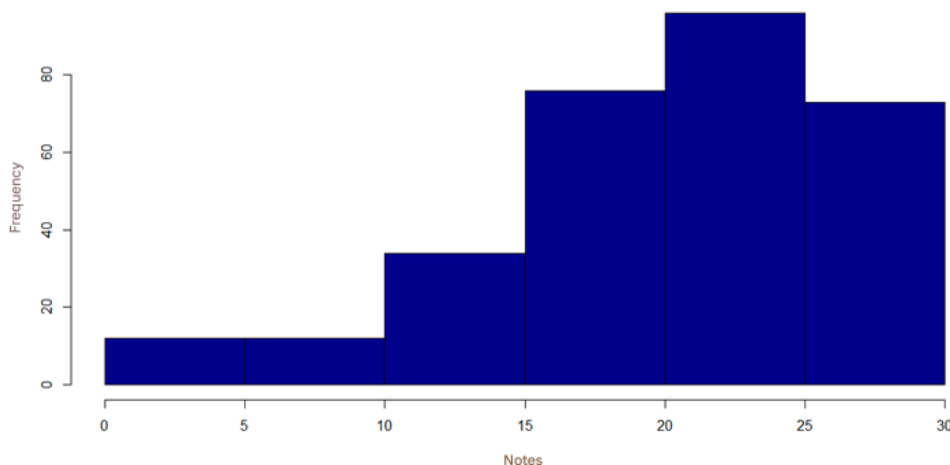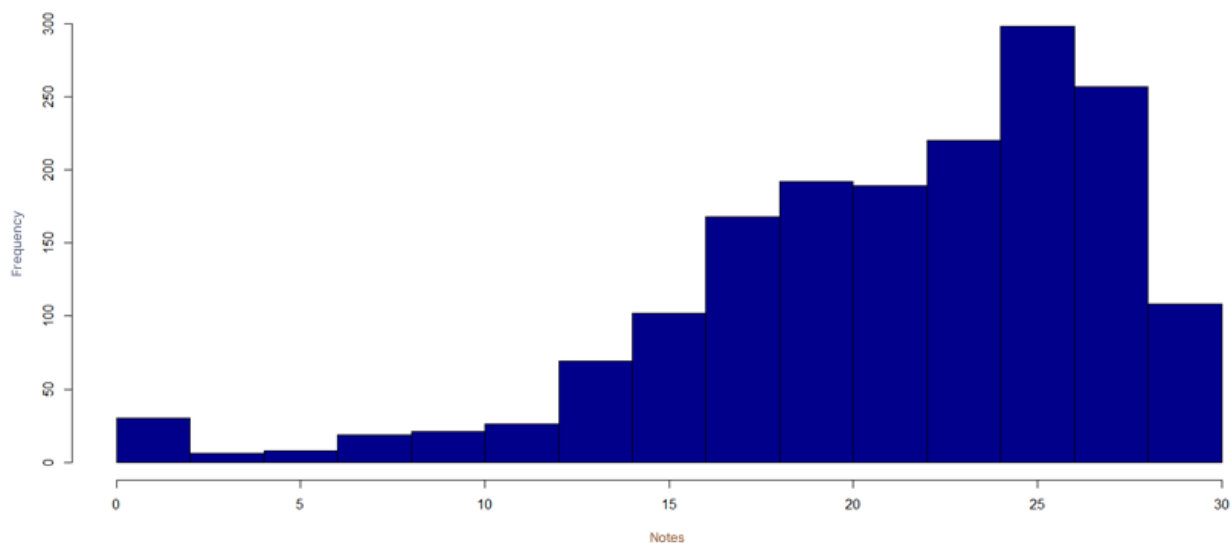
Figure 5: Histogram of the distribution of writing scores of candidates in the Biological Sciences course

The grades that appear most frequently in the Physical Education course would be in the range between 10 and 30 points, and the range in the Philosophy course would be between 20 and 25 points. (Figs. 6 and 7).

Figure 6: Histogram of the distribution of writing scores of candidates in the Physical Education course
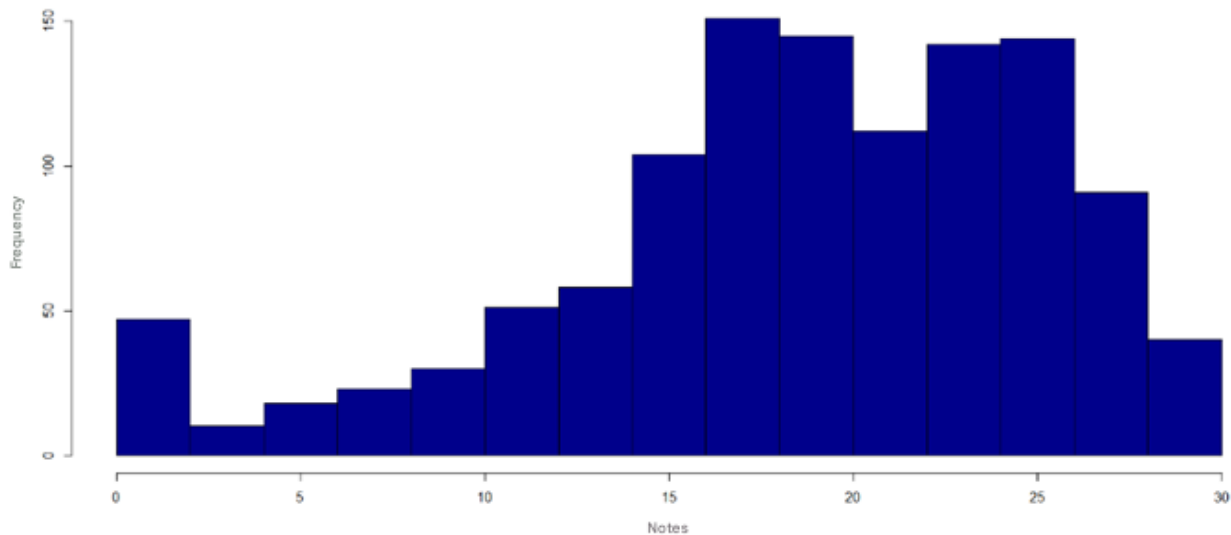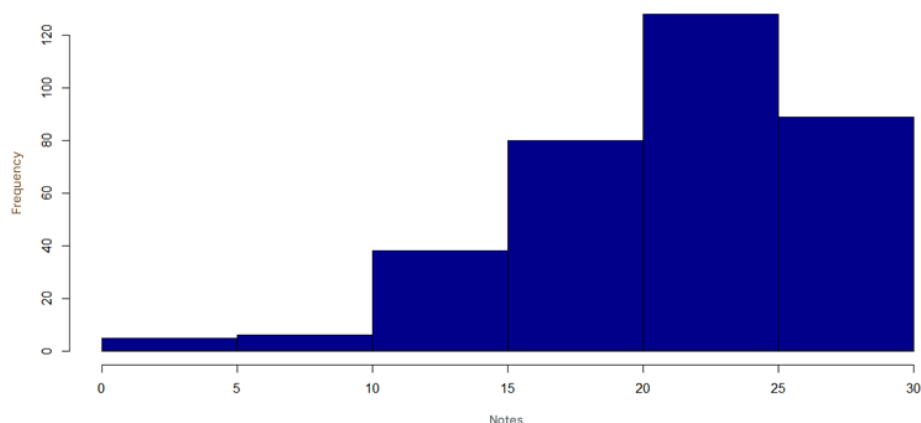
Figure 7: Histogram of the distribution of the writing grades of the candidates of the Philosophy course

In the Physics course, the most frequent grade range, as shown in Figure 8, would be between 20 and 30 points, and the Geography course had the highest frequency range between 20 and 30 points (Figs.8 and 9).

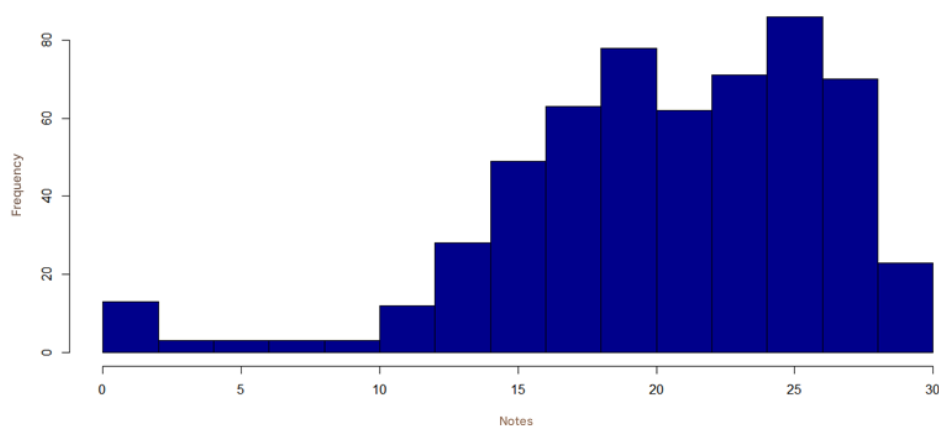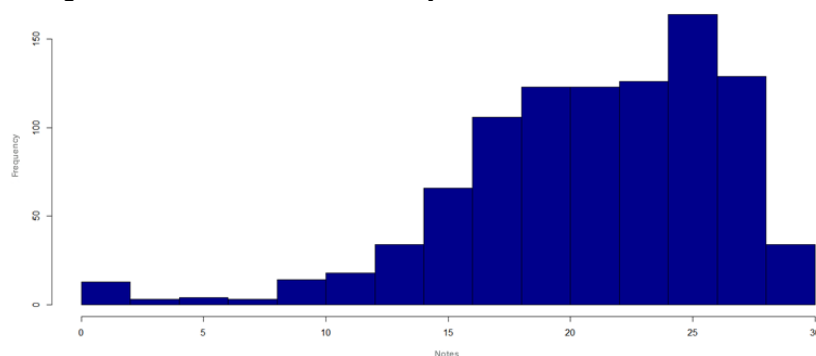**Figure 8:** Histogram of the distribution of the writing scores of the candidates of the Physics course

Figure 9: Histogram of the distribution of essay scores of candidates in the Geography course

The most frequent grade range in the history course was between 20 and 30 points, while the Spanish course had the most frequent grade range between 20 and 25 points (Figs.10 and 11).

Figure 10: Histogram of the distribution of writing scores of candidates in the History course
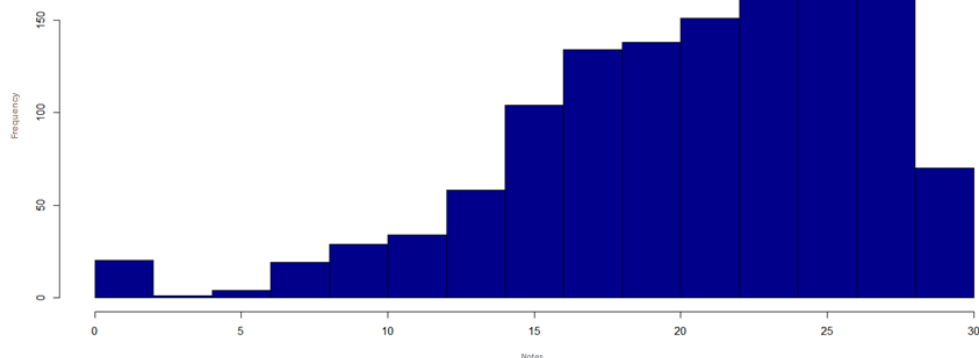

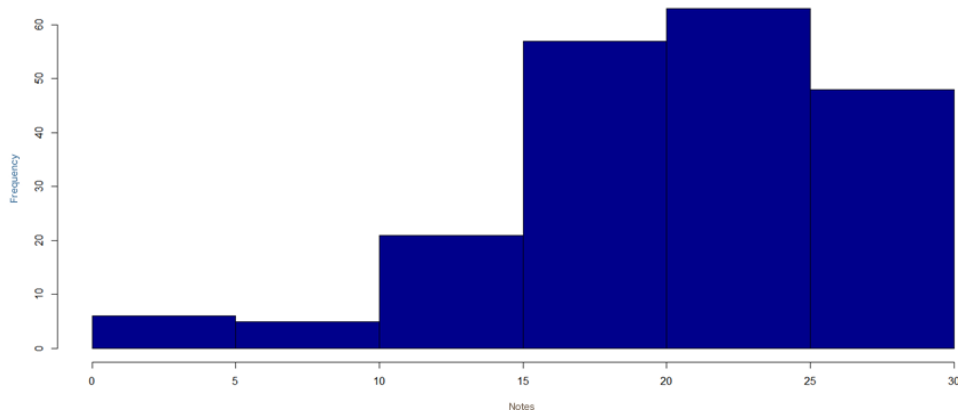**Figure 11:** Histogram of the distribution of essay scores of candidates in the Spanish course
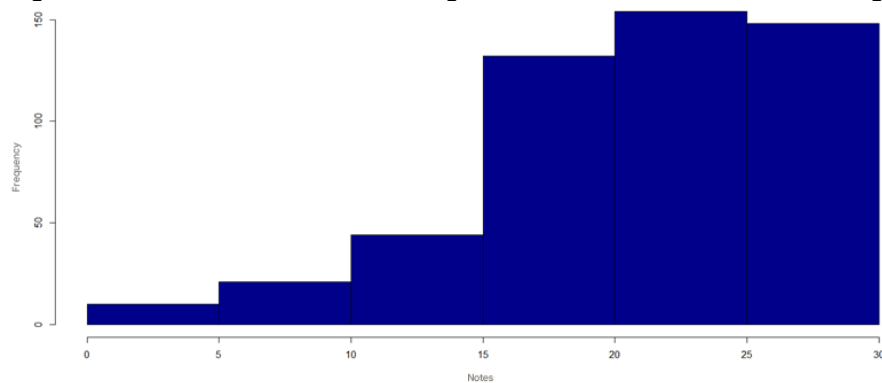

Figure 12: Histogram of the distribution of the writing scores of the candidates of the English course

The range of grades of the English teachers who presented the highest frequency was in the range between 20 and 25 points, and the most frequent interval in the Portuguese course was between 20 and 30 (Figs. 13 and 14).

Figure 13: Histogram of the distribution of the writing grades of the candidates of the Portuguese course
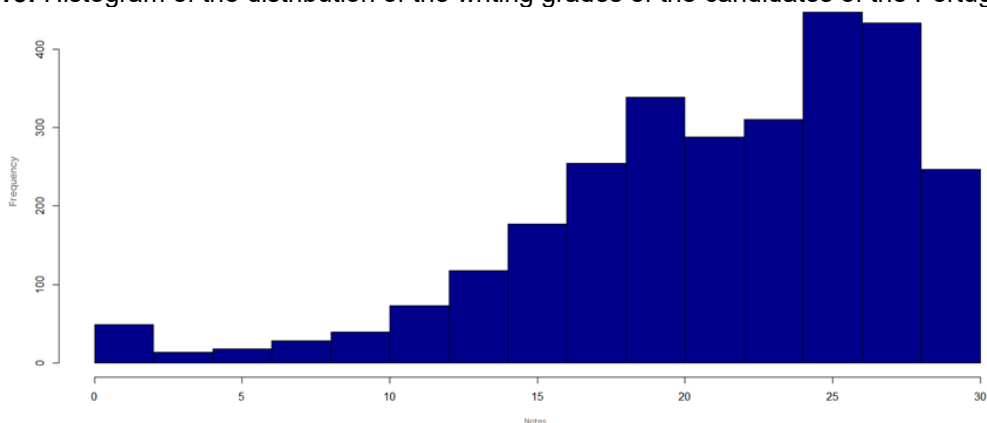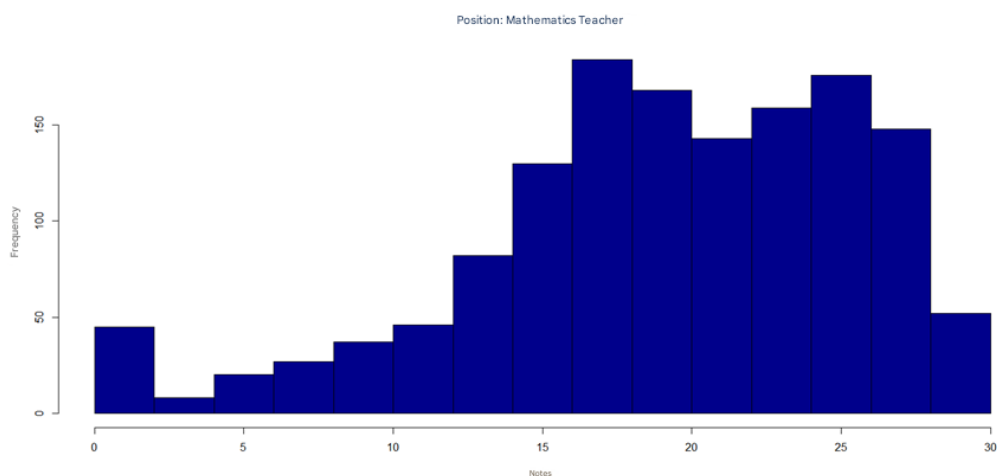

Figure 14: Histogram of the distribution of the writing scores of the candidates of the Mathematics course

The most frequent grade interval in the Mathematics course was between 10 and 30, the same interval as the most frequent in the Physical Education course, while the Chemistry and Sociology course presented the same most frequent interval, between 20 and 30 (Figs.15 and 16).

Figure 15: Histogram of the distribution of the writing scores of the candidates of the Chemistry course
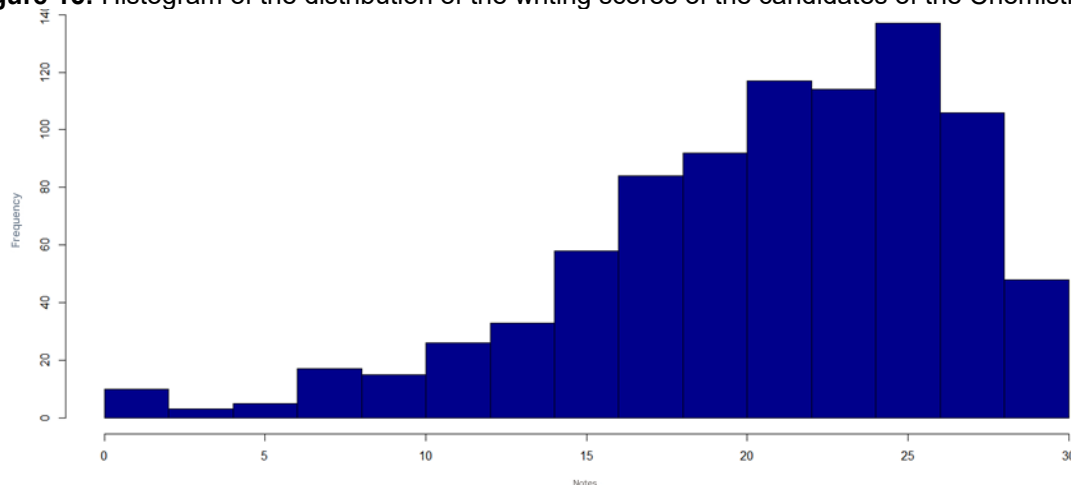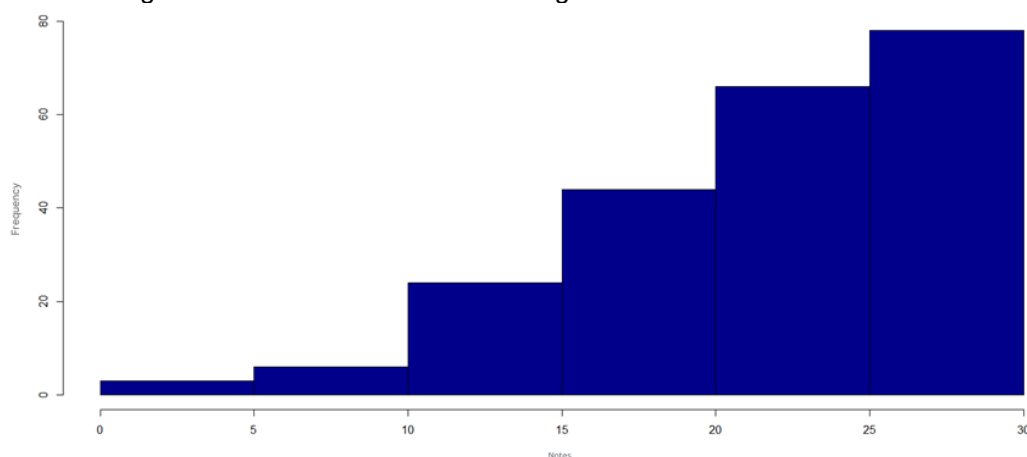

Figure 16: Histogram of the distribution of the writing scores of the candidates of the Sociology course

The theme of the essay of the contest "Education for sustainability as a pedagogical practice aimed at social transformation", is transversal and is aligned with the environmental education policy established in the 1998 Constitution.

This theme should be addressed in all Teaching Degree courses. However, the results show that teachers of Physical Education and Mathematics courses have some difficulty in textual production on this theme, evidenced by lower grades and greater data dispersion. This indicates that some of these teachers obtained below-average grades, as could be seen in the histograms discussed above.

APPLICATION OF THE MANN-WHITNEY TEST

To compare the performance of Geography teachers with teachers of other disciplines, the following procedure was used:

(1) The grades of all courses, except Geography, were grouped into a single list. (2) The grades of Geography and other courses were submitted to the Kolmogorov Smirnov test, in order to verify the hypothesis of normality of the data. The two data sets have a p-value $< 2.2 \times 10^{-6}$, which allows us to accept the hypothesis that the data do not come from a normal distribution.

(3) Considering that we did not assume the hypothesis of normality, a nonparametric test was selected to compare the two samples. The Mann-Whitney test was performed, which obtained a p-value = 0.2055, higher than the significance level of 0.05. Thus, we cannot consider the hypothesis of difference between the two groups.

Thus, it is evident that there is no significant difference between Geography teachers and other courses in relation to the evaluation of written production.

CONCLUSION

The public competition for Basic Education teacher in the State of Pernambuco evaluated the performance of the essay test of teachers in the courses of Geography, Sociology, Philosophy, Portuguese, Spanish, English, Chemistry, Physics, Physical Education and History, based on the theme: "Education for sustainability as a pedagogical practice aimed at social transformation".

The courses of Sociology, Biology and Portuguese stood out with the best performances, evidencing the quality and consistency of the answers of the teachers in these areas. The Geography course also presented a remarkable performance, with a lower dispersion of data, indicating a homogeneity in the teachers' grades.

On the other hand, the Physical Education course had the worst performance in textual production, followed by the Mathematics course. Both courses showed a greater dispersion of grades, reflecting a significant heterogeneity in the performance of teachers. In addition, they were the only courses that presented a wider range of grade attendance, between 10 and 30 points, evidencing a greater fragility in the discursive test.

The Mann-Whitney test was also performed to compare the performance of Geography teachers with teachers of other disciplines. It was evident that there is no

significant difference between the teachers of Geography and the other courses in relation to the evaluation of the written production.

These results highlight the need for a closer look at teacher training and effective actions that seek to improve and correct the weaknesses identified, especially in textual production, which is an essential skill for the exercise of the teaching profession.

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