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Echoes of Experience in Teacher Selection: Perspectives from Preservice Mathematics and Science Teachers

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Research Article

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Abstract

Background/purpose. This study investigates the selection process of preservice mathematics and science teachers in Morocco, aiming to assess the perspectives of candidates on the fairness and efficacy of the process. The primary purpose of the study is to explore the challenges and concerns surrounding the criteria used for teacher recruitment.

Materials/methods. A cross-sectional survey approach was used, involving 212 candidates enrolled at the Regional Center for Education and Training Professions in Rabat. Data were collected through a structured questionnaire focusing on the preliminary selection criteria, written tests, and interviews.

Results. Candidates expressed concerns over age-based selection criteria and qualification requirements in the initial selection, suggesting these do not predict teaching quality. The alignment of written exams with university curricula was questioned, particularly regarding didactics and educational sciences. Additionally, the written tests were seen as insufficient in assessing practical teaching competencies, calling for more scenario-based questions.

Conclusion. The study highlights the need for a more inclusive and adaptable selection process that addresses concerns over age limits and balances academic qualifications with practical teaching skills. Improving the alignment with curricula and incorporating real-world scenarios could enhance fairness and better assess the competencies essential for effective teaching in Morocco.

1. Introduction

Mathematics and science are essential in every educational system globally due to their profound impact on economic development, research advancements, and students' cognitive abilities. As nations strive to excel in various domains, ensuring high-quality instruction in these subjects becomes imperative (Hanushek & Woessmann, 2015). This challenge is further complicated by the complex nature of these fields and the high demand for skilled professionals across multiple sectors, as countries with more advanced labor forces experience faster growth in knowledge-based industries (Ciccone & Papaioannou, 2009; Hanushek & Kimko, 2000). In its efforts to achieve significant economic progress under the new development model, Morocco focuses heavily on enhancing human capital to better prepare for future challenges, recognizing the importance of cultivating well-trained professionals capable of competing in a globalized economy (Benmoussa, 2023). However, recent reports published by the OECD revealed that Moroccan students scored alarmingly low in science and mathematics, exposing serious deficiencies within the education system (OECD, 2023), which may hinder the country's broader development goals. A key issue highlighted by these findings is the selection process for science and mathematics teachers, as teacher quality remains one of the most influential factors impacting student achievement (Sanders & Horn, 1998). Teacher competence, coupled with factors such as the work environment, recruitment methods, and opportunities for professional development, plays a crucial role in shaping educational outcomes (OECD, 2005). Accordingly, this study evaluates the selection process for science and mathematics teachers by analyzing preservice teachers' perspectives drawn from their educational experiences, considering the importance of these perspectives to ensure a comprehensive evaluation of the efficacy and relevance of current teacher selection frameworks (Bilgin & Aykac, 2016; Polat, 2022). The aim is to offer insights that can improve strategies for recruiting and retaining high-quality teachers.

2. Literature Review

Selecting high-quality prospective teachers is crucial for improving educational outcomes, given the strong relationship between educator effectiveness and student achievement (Darling-Hammond & Youngs, 2002). Additionally, economists argue that investing in the selection of a single qualified teacher can yield lifetime earnings gains by hundreds of thousands of dollars, significantly benefiting the nation's social and economic well-being (Kane & Staiger, 2012). Since the human capital acquired by students is assumed to be proportional to the human capital of teachers (Becker, 2009), selecting unqualified teachers represents a costly mistake. However, the complexity of this issue becomes more severe when it comes to selecting science and mathematics teachers, considering that the number of graduates in these disciplines has been insufficient to meet demand (Hossain & Robinson, 2012; Stern & Williams, 1986). Additionally, concerns have been raised about the declining number of students pursuing science subjects in the later years of secondary school, which is crucial for cultivating future leaders in the global economy (Goodrum et al., 2012). This trend underscores the heightened urgency of finding high-quality science teachers who can foster an inspiring and effective educational environment.

Assessing the quality of selection procedures begins with examining the strength of policy frameworks established to ensure the caliber of future mathematics and science teachers. Countries like Macao (China) and Singapore, which have implemented rigorous quality assurance mechanisms in their entry requirements for the teaching profession, consistently outperform in mathematics knowledge of future secondary teachers in contrast to countries with weaker arrangements, as highlighted by the Teacher Education and Development Study in Mathematics (TEDS-M) survey (Tatto et al., 2012). This underscores the critical role of strong selection strategies in boosting the quality of future teachers. Consequently, decision-makers in countries with more centralized selection

processes and less rigorous quality assurance have been criticized for relying on intuition rather than evidence when evaluating their selection procedures (Davies et al., 2016). This underscores the importance of continuous evaluation and refinement of selection strategies, including those for Moroccan science and mathematics teachers, to uphold and enhance educational standards.

There are three primary methods used worldwide for selecting teachers for employment. The first is a centralized system, where large numbers of applicants are processed using standardized procedures. The second is a decentralized approach, which grants considerable autonomy in hiring, often placing decision-making authority in the hands of school principals. The third is a hybrid system, in which a central office initially screens candidates, but final hiring decisions are made at the school level (Klassen & Kim, 2019). Research suggests that decentralized selection methods, typically used by smaller units, tend to be less reliable than more systematic and structured approaches (Han, 2018). Morocco, like Spain, Turkey, and Singapore, employs a centralized selection system characterized by standardized procedures. This process begins with an initial screening of candidates, followed by a written examination, and concludes with an interview (figure 1). However, despite its structured nature, the procedure presents several challenges. The subsequent sections will delve into the specific issues and considerations associated with each stage of the teacher selection process.

2. 1 Preliminary Selection Process for Science Educators

2. 1. 1. Age-related selection criteria

Age is commonly used as a selection criterion in professions such as the armed forces, police, and fire departments, where it can serve as a legitimate factor (Borgatfa, 1991). However, the introduction of a 30-year age limit in Morocco's 2022 teacher selection process has raised serious concerns about its relevance to teacher effectiveness and the quality of applicants. Research suggests that age is a poor predictor of performance and is unrelated to an applicant's ability to fulfill job requirements (Schmidt & Hunter, 1998). Furthermore, age-based hiring decisions in teaching are often seen as part of unconscious biases, alongside those related to race and appearance (Cook, 2009). Introducing such a criterion may inadvertently reinforce these biases in various forms, raising significant concerns about potential age discrimination in other professions as well, where similar criteria might be used without valid justification, with the teacher selection process being used as the sole rationale.

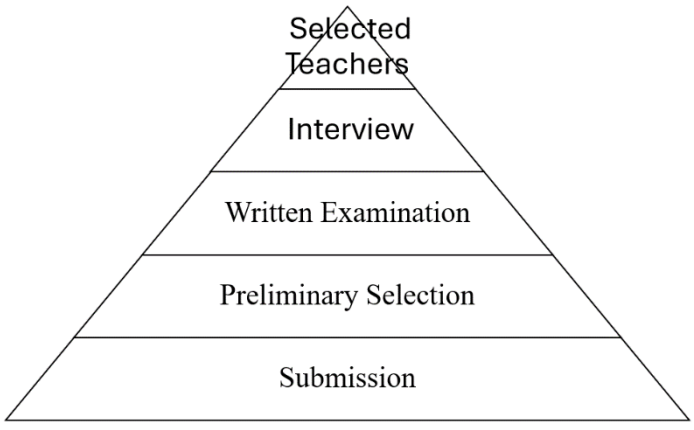

Figure 1. Hierarchical Process of Mathematics and Science Teacher Selection in Morocco.

The United Nations reports that global economies suffer billions in losses annually due to ageism and age-related prejudice (UN, 2021). In response, regions such as the United States have enacted legislation to combat age discrimination. For instance, the Age Discrimination in Employment Act (ADEA) of 1967 prohibits age-based discrimination unless age is a bona fide occupational qualification, meaning it must be reasonably necessary to the regular operation of the job (Stronge

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& Hindman, 2006). Retaining age as a criterion in teacher selection overlooks more relevant indicators of teaching proficiency. This oversight could not only reduce the quality of the applicant pool but also lead to unintended social, economic, and political repercussions.

2. 1. 2. Candidates' academic qualifications and fairness

Academic attributes are considered crucial in evaluating the qualifications of prospective teachers, as they can be easily accessed through existing academic records (Klassen & Kim, 2019). This perspective justifies the Ministry of Education's reliance on academic records in the preliminary selection process and its exemption of education degree holders, assuming that their degrees indicate superior quality and suitability. However, evidence from the United States suggests that certification alone does not necessarily correlate with teacher effectiveness (Kane et al., 2008). Thus, holding a degree in education does not automatically make a candidate more qualified. Similarly, selecting candidates solely based on high academic performance may not ensure they are well-suited for the role.

Various forms of teacher knowledge, including subject-specific content knowledge, pedagogical content knowledge, and psychological-pedagogical knowledge, are considered critical to teacher quality (Kunter et al., 2013). However, research suggests that teacher effectiveness is more significantly enhanced through experience, which fosters greater reflectiveness and depth of knowledge (Atteberry et al., 2015; Bahr & Mellor, 2016; Stavridis & Papadopoulou, 2022). While exempting education degree holders and prioritizing high academic performers may seem like decisions aligned with job requirements, an over-reliance on academic records leads to some applicants being excluded from the selection process risks, overlooking the broader competencies essential for classroom success. This approach could also perpetuate perceptions of unfairness and inequality by prioritizing academic achievements over the diverse skills required for effective teaching.

2. 2. Written Evaluations and Interviews

Although the written test and interview are distinct assessments, they will be discussed together in standard sections due to the overlap in issues they address. This approach not only avoids unnecessary repetition but also ensures coherence in the analysis of these related aspects.

2. 2. 1. Scheduling and exam management

Ensuring the effective management of all examination aspects, particularly scheduling and resource allocation, is vital to preserving the integrity of the assessment process and ensuring a smooth examination procedure. The coordination required across multiple administrative bodies highlights the complexity of this task, which, despite its challenges, remains indispensable for upholding the quality of the selection process (Elen, 2022). Given this complexity, the organizational aspects of examinations, including written evaluations and interviews, are critical components of the overall selection process. This is particularly important as it ensures that candidates have optimal conditions, allowing for the most accurate assessment of their abilities and qualifications. Research suggests that disorganized schedules can adversely affect candidates' performance and overall satisfaction, underscoring the need for more equitable solutions that minimize the perception of unfair disadvantage among applicants (Muklason et al., 2017). Thus, it is crucial to continuously evaluate the alignment of interview and written test schedules with applicants' circumstances while also assessing their satisfaction regarding various aspects of the process.

2. 2. 2. Adherence to described content domains and alignment

The adherence of entry tests for math and science teachers to the content domains outlined in test descriptions and their alignment with university-taught subjects is crucial for ensuring a fair

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and valid assessment of prospective teachers. This alignment communicates a consistent message about what is valued in the educational process (Webb, 1999). Entry tests should reflect the specific knowledge and skills outlined in the official curriculum to ensure reliability, content validity, and an accurate measure of a candidate's preparedness (Beck, 2007). In particular, alignment with university programs is critical, as it ensures that the competencies developed during teacher education are thoroughly assessed. In subjects like math and science, this alignment is critical due to the epistemological nature of these fields, which shapes how candidates approach learning and problem-solving (Elby, 2022). Additionally, the inclusion of didactics in the entry test, which assesses not only subject knowledge but also teaching methodologies and educational sciences, is key to evaluating a teacher's holistic preparedness.

A lack of alignment can undoubtedly lead to a case of the Washback effect, where candidates focus solely on preparing for specific concepts they expect to be tested on rather than developing a deeper understanding of the subject matter. As a result, various aspects, such as the curriculum, learning processes, and even candidates' feelings and attitudes, are likely to be affected (Alderson & Wall, 1993). In this context, multiple elements of teacher education, particularly university undergraduate education programs, would be impacted. To maintain educational consistency, it is crucial that test blueprints are continuously evaluated to ensure a clear connection between the pedagogical and subject-specific knowledge imparted during university training. This alignment not only supports a more comprehensive assessment but also promotes better knowledge transfer between teacher preparation and entry evaluation.

2. 2. 3. Effectiveness of interview and written test

The effectiveness of written and interview entry tests in selecting mathematics and science teachers is critical to the teacher selection process. Written tests provide a standardized measure to assess candidates' subject knowledge, understanding of current educational policies, pedagogical competencies, and ability to clearly articulate educational concepts. Such assessments offer objective data that help identify candidates with the necessary academic qualifications for teaching. However, regardless of subject specificity, standardized examination papers may fail to accurately evaluate professional knowledge in a specialized field (Guoning, 2020). Furthermore, written exams may not effectively capture a candidate's non-academic attributes, practical teaching abilities, or interpersonal skills, which are essential for successful classroom management and student engagement (Klassen & Kim, 2019).

In contrast, interview assessments are valued for their authenticity, as they enable in-depth discussion and genuine interaction. This format supports a deeper understanding and critical evaluation, reducing the superficial recall often associated with written exams (Joughin, 2007). Although interviews can be stressful and may favor more extroverted, confident candidates (Wisker, 2004), this pressure can highlight a candidate's ability to positively impact the classroom environment and demonstrate self-management. Additionally, interviews reveal attributes such as critical thinking and comprehension (Gent et al., 1999). These skills, essential for the dynamic nature of teaching, are often best demonstrated through real-time interactions, offering interviewers valuable insights into each candidate's suitability

Although research indicates that applicants may perform better in interviews than in written tests (Huxham et al., 2012), using both methods together can strengthen the selection process, with each approach compensating for the limitations of the other, leading to a more thorough evaluation of a candidate's potential as an educator. Given the limited systematic evaluation of selection methods, decision-makers may lack critical analysis of the validity of current practices (Bowles et al., 2014). Consequently, insights from candidates on the effectiveness of written and interview tests could prove valuable for the ongoing improvement of the selection process.

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Given the challenges highlighted and the 2018 PISA results showing low performance among Moroccan students in Mathematics and Science, there are growing concerns about the effectiveness of Morocco's education system. Continuous research and evaluation are needed to address these issues and advance educational practices. To our knowledge, no research exists on the selection process for Mathematics and Science teachers in Morocco, and this lack of comprehensive evaluation raises concerns about the long-term impact on candidate selection and education quality.

This study conducts a formative evaluation of Morocco's current selection procedures for preservice science and mathematics teachers, addressing key challenges in the process. By examining preservice teachers' perspectives concerning their prior teaching experience, this study recognizes the significant influence of prior educational experiences on the beliefs and pedagogical approaches of prospective mathematics teachers (Antoniou et al., 2015; Bahr & Mellor, 2016; Muñoz et al., 2024). The study analyses correlations between preservice teachers' experiences and their views on selection criteria, including age limits, academic qualifications, written examinations, and interviews. The insights gained will support actionable recommendations to enhance the selection of high-quality candidates, aligning with Morocco's broader goals of educational equity and quality improvement. To achieve this purpose, the following research questions were addressed:

- How do preservice mathematics and science teachers perceive the preliminary selection criteria, including age limitations, exemptions for education degree holders, and overall fairness in the candidate selection process?
- What are preservice mathematics and science teachers' perceptions of the organizational aspects of the interview and written examination? To what extent do they believe the written tests and educational sciences align with the prescribed content domains and university curriculum?
- To what extent do the written and interview processes effectively assess candidates' readiness for the teaching profession?

3. Methodology

3. 1. Research Design

In this study, a quantitative research methodology was employed to collect and analyze data from a sample of preservice mathematics and science teachers (including physics-chemistry and Life and earth sciences) within the regional center of professions in education and training in Rabat. The questionnaire utilized in this investigation was meticulously developed and refined before being administered to the participants. The principal objective of this research endeavor is to gain insights into the perspectives held by preservice mathematics and science teachers concerning the most recent selection process administered in 2024 for aspiring science educators. This methodological framework allows us to comprehensively assess experienced teachers' viewpoints, marking an initial stride toward the comprehension and potential enhancement of the designed selection process for preservice science educators.

3. 2. Participants

The study involved 212 preservice mathematics and science teachers (Physics and Life Sciences teachers) from the Regional Center for Education and Training Professions in Rabat, Morocco, all of whom successfully passed the selection process. Of the participants, 59.4% (n=126) were female, and 40.6% (n=86) were male. Age distribution showed that 48.1% (n=102) were between 20 and 23 years old, 31.6% (n=67) between 24 and 26, and 20.3% (n=43) between 27 and 30. Specialties included Mathematics (52.8%, n=112), Physics and Chemistry (34.0%, n=72), and Life and Earth Sciences (13.2%, n=28), with the latter two groups representing the science teachers. In terms of academic

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background, 28.8% (n=61) held a degree in education, while 65.6% (n=139) had a degree in fundamental studies, and 5.7% (n=12) had an equivalent degree. Regarding teaching experience, 43.9% (n=93) had no prior experience, 40.6% (n=86) had less than one year of experience, 14.2% (n=30) reported 1–3 years of experience, and 1.4% (n=3) had more than three years.

3. 3. Instrument

In this study, we utilized a 27-item survey questionnaire to gather data on preservice Mathematics and Science teachers' perceptions of the selection process. The instrument was developed and validated for content by a panel of four experts: three educators specializing in mathematics and science teacher training from the Regional Center for Education and Training Professions and the Higher School of Education and Training, all with extensive experience in initial teacher education programs, along with a postdoctoral researcher specializing in education and survey design.

The questionnaire comprises four main sections:

- Demographic Information: The first section includes eight items collecting demographic details about the respondents, such as gender, age, teaching experience, subject area, academic qualifications, and highest degree obtained.
- Perceptions of the Selection Process: The second section contains five items that elicit teachers' opinions on various aspects of the preliminary selection process, including age limits, fairness, and required qualifications.
- Written Test and Interview Phases: The third and fourth sections consist of 14 items addressing teachers' perspectives on different aspects of the written test and interview phases, such as scheduling, management, alignment with university-taught subjects, and the content domains described for the exam, and overall effectiveness of the tests.

Sections 2, 3, and 4 use a five-point Likert scale, ranging from 5 (Strongly Agree) to 1 (Strongly Disagree). The first section employs closed-ended questions.

The instrument demonstrated a Cronbach's alpha of 0.774, indicating acceptable internal consistency across items.

3. 4. Procedure and Sampling

Following the development and validation of the questionnaire, it was administered to Moroccan Preservice Mathematics and Science teachers at the Regional Center for Education and Training Professions in Rabat. A digital data collection tool was used after meeting with the head of classes in order to facilitate the distribution of the questionnaire across the sampled preservice teachers. The sampling approach employed for participants' selection was the convenience sampling method, ensuring that each potential participant within the target population had an equal opportunity to be included in the study. Data was collected over two days, on the 13th and 14th of June 2024.

3. 5. Data Analysis

For data analysis, descriptive statistics were first computed to summarize the respondents' demographic characteristics, including age, experience, and specialty, as well as the distribution of responses to the 24 Likert scale questions. Subsequently, the Kolmogorov-Smirnov test was applied, revealing significant deviations from normality for all variables ($p < 0.05$). This finding justified the subsequent use of non-parametric tests for deeper analysis. To assess associations between categorical variables, such as specialty and Likert scale responses, we utilized the Chi-Square test, setting the significance level at $p < 0.05$. Furthermore, due to the ordinal nature of the Likert scale

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data, typically quantified on a 5-point scale, the Kruskal-Wallis H test was employed to analyze the distribution of responses across varying levels of teacher experience. This non-parametric alternative is favored in scenarios where data do not meet the normality and homogeneity of variance assumptions required by ANOVA (Cohen et al., 2002). All analyses were conducted using SPSS 23.

4. Results

4. 1. The preliminary selection

In this subsection, we analyze the key findings presented in Table 1, focusing on the Chi-square and Kruskal-Wallis results pertaining to preservice teachers' experiences and their views on the preliminary selection process (see Table 1).

Table 1. Chi-Square and Kruskal-Wallis Analysis of Preservice Teachers' Perceptions on Preliminary Selection Criteria

Items	χ^2 (df =12)	Chi-Square (p-value)	H (df = 3)	Kruskal-Wallis (p-value)	Mean	Std
1-The age-related selection criteria serve to secure high-quality candidates	83. data analysis	.0001*	9.31	.025*	2.21	1.36
2-Exempting education degree holders from initial selection ensure a high-quality candidate pool	45.54	.0001*	5.45	.142	2.49	1.74
3-Initial selection criteria ensure acquiring the most qualified candidates.	29.90	.003*	3.99	.262	3.32	1.43
4-Selection criteria in the preliminary selection were fair	25.91	.011*	1.65	.647	2.76	1.44
5-Introduce supplementary criteria for optimal preliminary selection	34.20	.001*	5.80	.121	2.85	1.53

The results provide insightful perspectives on the effectiveness of age-related selection criteria in securing high-quality candidates. Overall, participants expressed general disagreement with these criteria, with less experienced educators demonstrating the highest levels of concern. This pattern suggests that newer teachers may hold particular apprehensions about the appropriateness and impact of these selection standards. Similarly, exempting education degree holders from initial selection criteria faced notable skepticism, especially among less experienced teachers. While newer educators expressed strong disagreement with this exemption, more experienced teachers showed minimal or no concerns. Overall, the findings suggest that criticism of the exemption is primarily concentrated among those with limited teaching experience, though differences across experience levels were not statistically significant.

The initial selection criteria were generally viewed as effective in identifying qualified candidates, particularly among teachers with some experience, who expressed higher levels of agreement. However, participants were less confident in the fairness of these criteria, with newer teachers

showing notable disagreement regarding their effectiveness. While responses varied across experience levels, these differences were not consistently significant across all groups. Lastly, there was support for introducing supplementary criteria to improve the preliminary selection process, highlighting the complexities of the current selection framework. These findings underscore the need for ongoing evaluation and potential revisions to enhance fairness and effectiveness in candidate selection

4. 2. Written Test

In this subsection, we analyze the key findings presented in Table 2, focusing on the Chi-square and Kruskal-Wallis results regarding preservice teachers' experiences and views on the written test (see Table 2).

Table 1. Chi-Square and Kruskal-Wallis Analysis of Preservice Teachers' Perceptions on Written Test

Items	χ^2 (df)	Chi-Square (p-value)	H (df = 3)	Kruskal-Wallis (p-value)	M	Std
6-The scheduling of the written test was convenient	20.61	.057	8.09	.044*	3.12	1.49
7-The written exams for the specialization subject adhered to the described content domains	27.73	.004*	11,68	.009*	3.75	1.19
8-The written exams for the science of education and didactics adhered to the described content domains	66.39	.0001*	9.08	.028*	3.53	1.21
9-The written exams in the specialization subject align with the university curriculum.	20.01	.048*	5.22	.156	3.77	1.12
10-The written exams in the sciences of Education and Didactics align with the university curriculum	24.24	.012*	3.35	.340	3.17	1.43
11-Written test effectively assesses the candidate's suitability	53.36	.0001*	7.36	.061	2.17	1.10

The findings reveal mixed perceptions regarding the scheduling of written exams in the teacher selection process. While many participants found the scheduling convenient, there were varying opinions based on teaching experience. Teachers with no experience viewed the scheduling more favorably, whereas those with less than a year of experience were more divided. Overall, teachers without experience tended to see the scheduling positively. On the other hand, there was a strong consensus among participants regarding the adherence of written exams to specified content domains, particularly in specialization subjects. Less experienced teachers, especially those with under a year or no experience, generally viewed this alignment favorably, while those with one to

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three years of experience had more varied opinions. Overall, adherence to content domains received positive feedback, particularly from newer educators.

The alignment of written exams with university curricula received generally positive feedback for specialization subjects, with most teachers across experience levels agreeing that the exams align well with their university education. Teachers with one to three years of experience expressed the highest levels of agreement, followed closely by those with less than a year or no experience. However, perceptions regarding education sciences and didactics were more mixed. Teachers with less than a year of experience showed varied opinions, and similarly, teachers with no experience or one to three years of experience displayed diverse views. Overall, while the exams in specialization subjects were seen as well-aligned, views on the alignment for didactics and educational sciences were more divided.

The effectiveness of the written test in assessing candidates' suitability received mixed feedback. While overall support was strong, with notable endorsement across participants, perceptions varied significantly by experience level. Teachers with less than a year or no experience largely disagreed with the test's effectiveness, while those with one to three years of experience showed a more balanced perspective. These findings underscore the need for ongoing evaluation to enhance both alignment and effectiveness in the teacher selection process, particularly for less experienced educators who may view the test more critically.

4. 3. Interviews

In this subsection, we analyze the key findings presented in Table 3, focusing on the Chi-square and Kruskal-Wallis results pertaining to preservice teachers' experiences and their views on the Interviews (see Table 3).

Table 2. Chi-Square and Kruskal-Wallis Analysis of Preservice Teachers' Perceptions on Interview Phase

items	χ^2 (df)	Chi-Square (p-value)	H(df)	Kruskal-Wallis (p-value)	Mean	Std
12-The scheduling of the interviews was convenient	20.17	.064	3.09	.377	3.68	1.17
13-Approximately two hours were allocated for preparing the practical scenario	36.02	.0001*	1.10	.775	3.64	1.49
14-The committee provided sufficient time for presenting the educational scenario	32.36	.001*	13.45	.004*	4.05	1.09
15-Committee questions on the science of education and didactics align with university curriculum	27.45	.007*	7.84	.049*	3.45	1.43
16-The interview effectively assesses the candidate's teaching abilities	29.50	.003*	6.26	.099	3.36	1.25

The findings reflect participants' perceptions of the interview process in terms of scheduling and time allocation. While the convenience of interview scheduling was viewed somewhat positively, there remained room for improvement, as reflected in the overall responses. On the other hand, participants expressed concerns about the time allocated for preparing the practical scenario, indicating that more preparation time would be beneficial. In contrast, the time provided for presenting and discussing the educational scenario received notably positive feedback, with most respondents feeling well-supported in this aspect. Teachers with less than a year or no experience viewed the presentation time favorably, while those with one to three years of experience were more

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neutral. Overall, the majority felt that sufficient time was provided for presenting the educational scenario, with agreement increasing among more experienced teachers.

The alignment of committee questions with university curricula raised significant concerns among participants, particularly those with less experience, who showed mixed perceptions about the relevance of interview questions to their educational background. More experienced teachers, however, generally viewed the questions as well-aligned with their university curriculum. Additionally, the interview process was seen as moderately effective in assessing candidates' teaching abilities, though there remained room for improvement to ensure it fully reflected educational standards. These findings highlight the importance of refining the interview process to assess candidates' competencies better and strengthen alignment with curriculum standards. Lastly, the interview process was considered moderately effective in assessing candidates' teaching abilities. While there was overall support for its effectiveness, responses did not vary significantly across experience levels. This suggests that, although the interview is viewed positively, further refinement could enhance its ability to comprehensively evaluate teaching competencies for candidates at all experience levels.

5. Discussion

The perspectives of preservice science and mathematics teachers on the current selection process in Morocco reveal significant opportunities for enhancing the methods used to identify and recruit high-quality candidates. Notably, the age-based criteria for selection have come under scrutiny. Despite being the beneficiaries of these criteria, many newer educators have raised concerns, suggesting that such restrictions may not optimally assess teaching potential. This observation is supported by existing research, like that of Schmidt and Hunter (1998), which contends that age does not consistently predict teacher effectiveness. Consequently, an overemphasis on age limits could inadvertently narrow the range of applicants and undermine diversity within the teaching workforce. Furthermore, this phenomenon of age discrimination is not isolated to the educational sector but is evident across various professional fields, potentially affecting diverse aspects of employment and promotion (Posthuma & Campion, 2009).

The skepticism around exempting education degree holders from initial selection was also prevalent, especially among teachers with limited experience. This perspective may arise from concerns about fairness and meritocracy, with participants questioning whether holding an education degree or higher academic performance during university inherently signifies higher teaching quality. Previous studies have similarly highlighted that academic credentials alone do not necessarily equate to effective teaching skills (Kane et al., 2008). This suggests that the selection process may benefit from a more holistic assessment of candidates' competencies beyond formal qualifications, considering factors such as subject knowledge, pedagogical skills, and adaptability. Furthermore, regarding the effectiveness of preliminary criteria for identifying qualified candidates, the results indicate that while the structured nature of Morocco's centralized selection process is generally effective, certain elements could be enhanced for greater fairness and inclusivity. Experienced teachers tended to view the preliminary selection criteria more favorably, suggesting that familiarity with the educational system may influence perceptions of its effectiveness.

The study reveals varied responses to the scheduling of written exams and interviews, with participants lacking teaching experience generally viewing the arrangements more favorably, likely due to fewer pre-existing expectations. Less experienced teachers, however, were more critical, highlighting the need for flexible scheduling to accommodate diverse candidate backgrounds. Additionally, while participants were mostly satisfied with the time allocated for presenting educational scenarios in interviews, concerns were raised about the limited preparation time for practical scenarios. Addressing these logistical issues by incorporating greater flexibility and

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additional preparation time could enhance candidate satisfaction, reduce stress, and create a fairer, more supportive assessment environment.

On the other hand, participants were generally satisfied with the alignment of written exams with specified content domains, especially in specialization subjects, which newer educators saw as reinforcing coherence between their training and the selection process. However, concerns were raised about the alignment of exams with the broader university curriculum in didactics and educational sciences, indicating potential gaps in content relevance and suggesting a lack of institutional coordination within Morocco's educational framework (Ouasri, 2019). Enhancing alignment with university curricula could improve the exams' legitimacy and relevance, ensuring they reflect the essential knowledge and skills emphasized in teacher training programs. Similarly, the alignment of interview questions with university curricula was questioned, particularly by less experienced teachers, who felt some questions were not directly relevant to their academic background. This perceived misalignment may discourage promising candidates and shape negative views of the selection process. Adjusting interview questions to reflect recent curricular changes and classroom realities could foster a stronger sense of relevance and fairness. While the interview process was viewed positively, refining it to align more closely with educational standards could enhance its effectiveness in assessing candidates' competencies.

The perceived effectiveness of the written test in assessing candidates' teaching abilities received mixed feedback, with less experienced teachers expressing greater criticism of its adequacy. This suggests that the written test alone may not sufficiently capture practical teaching competencies, particularly for early career candidates. Integrating the written test with other assessments that better evaluate pedagogical skills and classroom management could provide a more comprehensive evaluation of teaching readiness. Refining the test to include scenario-based questions or practical applications could also bridge the gap between theoretical knowledge and real classroom demands. Overall, these findings underscore the importance of a nuanced and adaptable selection process that addresses multiple facets of candidate assessment, from academic qualifications to hands-on teaching skills. Implementing a more comprehensive, evidence-based approach could help resolve these complexities, ultimately enhancing educational standards and better-preparing science and mathematics teachers in Morocco. Continued research and systematic evaluation will be crucial to aligning these processes with Morocco's broader objectives for educational advancement and workforce development.

Lastly, the mixed perceptions of the written test, particularly among less experienced teachers, suggest it may not fully capture practical teaching competencies, pointing to the need for efforts to bridge theory and real-world teaching experience. Similarly, while the interview process was moderately effective, its uniform reception across experience levels indicates room for improvement. Integrating practical, discussion-based elements could enhance its assessment of classroom readiness. Overall, these findings highlight the need for a flexible selection process that balances academic qualifications with practical skills, supporting Morocco's educational goals. Continued research and evaluation are essential for aligning these processes with Morocco's broader objectives for educational advancement.

6. Conclusion

This study offers valuable insights into the perspectives of preservice science and mathematics teachers on Morocco's current selection procedures, highlighting areas that can be optimized to attract and retain high-quality educators. The findings reveal that while certain aspects of the selection process, such as the alignment of written exams with content domains and the provision of time for interview presentations, are viewed positively, other areas raise concerns among candidates, particularly those with limited experience. These concerns, notably around age-related selection

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criteria, academic qualification exemptions, and the relevance of interview questions, underscore the need for a more comprehensive and adaptable approach to candidate assessment.

The mixed perceptions of the written and interview assessments suggest that Morocco's selection process would benefit from a balanced integration of academic credentials, practical competencies, and alignment with teacher preparation programs. Implementing these adjustments could help create a more transparent, fair, and inclusive framework that better evaluates the diverse skills required for effective teaching. Addressing these issues is crucial as Morocco strives to elevate its educational standards and foster an environment that values and supports teacher quality.

In conclusion, strengthening the teacher selection process through ongoing evaluation and alignment with educational goals will play a significant role in enhancing teacher preparedness and, ultimately, student outcomes. By focusing on strategies that address the diverse needs of candidates and better reflect the competencies essential for teaching, Morocco can take a decisive step toward improving the quality and effectiveness of its education system, thereby supporting the country's broader development aspirations.

7. Limitations and Implications

Important groundwork has been laid, highlighting key areas for improvement within the existing selection framework for preservice teachers. Despite these contributions, the study acknowledges certain limitations that could be effectively addressed by employing a mixed-methods approach. This methodology would enable a more detailed exploration of how preservice teachers perceive the selection process. By extending the research to additional regional centers for teacher professions and training across Morocco and broadening the sample to include teachers from various specialties and teacher educators, the study would not only enhance the data pool but also improve the relevance and impact of the findings.

Future research should also conduct a more summative evaluation of the current teacher selection processes to assess their alignment with the evolving demands of education, particularly in the context of the AI revolution (Bautista et al., 2024). This is crucial for pinpointing necessary revisions in both the teaching profession and the selection criteria. Continued exploration and rigorous evaluation are essential to ensure that Morocco's selection processes adapt effectively to meet its educational advancement goals, thereby fostering an educational system that is both innovative and adaptable.

Declarations

Author Contributions. O.Y: Literature review, conceptualization, investigation, discussion, original manuscript, methodology, data analysis, and results. E.H: Resources, preparation and supervision. GFZ: writing—review and editing, and supervision. EQ.M: validation, formal analysis, and software use. A.B: draft preparation and validation. DH: resources and review editing. EMY: Conceptualization, validation, writing—review and editing, and supervision. All authors have read and approved the final version of the article.

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