



Performance and Perspectives of Science Education Graduates in TRCN Exam at Federal University Gusau, Nigeria

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Abstract

This study utilized documentary analysis and a descriptive survey to examine the performance and perspectives of graduating science education students regarding the Teacher Registration Council of Nigeria Professional Qualifying Examination (TRCN PQE) at Federal University Gusau, Nigeria. The population comprised the entire 516 graduating science education students who sat for TRCN PQE across four academic sessions, with 217 participants selected for the study using a stratified random sampling technique. Two research instruments were utilized. The first was documentary analysis, which involved examining past TRCN PQE results. The second was a questionnaire with a reliability coefficient of 0.86. Data collected were analyzed using percentages and presented with bars and a chart. The Findings revealed that the pass rates in the TRCN PQE varied considerably over four academic sessions, with pass rates of 67%, 69%, 75% and 77% in 2018/2019, 2019/2020, 2021/2022 and 2022/2023 respectively. Students' perceptions of exam difficulty exhibited a positive shift, with the "Very Confident" category more than doubling from 15% before the exam to 40% after the exam. The study also revealed that 92% of students who did not pass the TRCN PQE expressed a strong willingness and commitment to re-sit the exam. The study recommended among others that, regular assessment of the TRCN PQE should be carried out by teacher training institutions and continually raising awareness about the mandatory nature of the exam to enhance teacher professionalism.

Keywords: Graduating, Science Education Students, Performance, Perspectives, TRCN

Introduction

Education serves as a cornerstone of societal advancement, and the quality of teachers plays a pivotal role in shaping the educational system (Darling-Hammond, 2017). Teacher certification examinations represent a crucial mechanism for ensuring that teachers possess the requisite knowledge and skills to excel in their roles (Ingersoll, 2017). Among these examinations, the Teacher Registration Council of Nigeria's (TRCN) Professional Qualifying Examination stands as a paramount benchmark for assessing teachers' competence within Nigeria's educational system (TRCN, 2014). According to Ajiboye (2019), in efforts to professionalize as well as raise the standards of teaching in Nigeria, TRCN introduced the Professional Qualifying Examination (PQE) in 2017 as a pre-requisite for Registration and Licensing of professional teachers which is conducted biannually. Moreover, TRCN has expanded access to the PQE to education graduates of teacher training institutions across the country tagged Professional Qualifying Examination Integrated (PQEI) (Ajiboye, 2019; TRCN, 2019).

The Federal University Gusau is a public, conventional, coeducational, research university located in Gusau, Zamfara State, with a mission to generate and expand human knowledge and capacity to transform society and to create positive change and cherish in partnership with various stakeholders, established in 2013 (Federal University Gusau, 2013). The university serves as a significant higher academic institution in the Nigerian education system.

The Faculty of Education, as one of the pioneering faculties in the university, is dedicated to nurturing future teachers and leaders, preparing students for the challenges and opportunities in the field of education. To uphold the professionalization of teaching, the Department of Science Education in the Faculty ensures that all its graduating students enrol and take the TRCN PQEI. Since its inception, the Department of Science Education has produced three sets of graduates with Bachelor of Science in Education degrees in Chemistry, Biology, Physics, and Mathematics.

According to Adetoro (2021), one remarkable fruit of professionalized teaching in Nigeria was the enactment of the Teachers Registration Council of Nigeria as contained in TRCN Decree NO. 31 of 1993, now TRCN Act CAP T3 of 2004. The Act, specifically in section 1(1), assigns the Council several key responsibilities. Among these are setting and periodically elevating the standards of knowledge and skills required for individuals aspiring to be registered as teachers under the Act. Additionally, it empowers the Council to Regulate and control the teaching profession in all its aspects and ramifications. Thus, TRCN has been conducting annual professional qualifying examinations for both aspiring and in-service teachers (TRCN, 2019). Osiesi and Odinko (2023) stated that a professional examination is an examination taken to qualify for a particular profession. The Teacher Registration Council of Nigeria Professional Qualifying Examination Integrated (TRCN PQEI) is an examination conducted by the TRCN to assess and certify individuals who aspire to become teachers in Nigeria professionalized teaching (Addison, & Steve, n.d.; Adetoro, 2021; Aneke, et al., 2016; Ojo & Emeka-Nwosu, 2023; Oni, 2019). The examination evaluates the candidates' knowledge and competence in various subjects and pedagogical skills, ensuring that they meet the required standards to be qualified professional teachers.

Teacher professional examinations are a fundamental component of the global education setting, designed to ensure that teachers are adequately prepared to teach and shape the next generation of learners. These examinations serve as gateways to the teaching profession, verifying that individuals possess the necessary knowledge and skills to be effective teachers (Darling-Hammond, 2017). In the Nigerian context, the Teacher Registration Council of Nigeria (TRCN) plays a pivotal role in regulating the teaching profession (Ikediugwu & Agbaizu, 2023), and TRCN PQEI serves as a critical assessment tool, evaluating aspiring teachers' competence and eligibility for certification (TRCN, 2019). It encompasses various subject areas and pedagogical skills, with the ultimate goal of enhancing the quality of education in Nigeria. Therefore, to attain TRCN certification and be recognized as a professional teacher in Nigeria, education graduating students must partake in TRCN PQEI (TRCN, 2019). Only those who pass this assessment are ultimately accredited and granted a professional teaching license. Hence, the TRCN PQEI represents a critical assessment for aspiring teachers, including science education students at Federal University Gusau. Tolu-Kolawole (2023) reported that no fewer than 3,963 teachers who participated in the November 2023 Professional Qualifying Examination for teachers nationwide, organized by the TRCN, did not pass. This situation signified that the pass rates and perspectives of science education students at Federal University Gusau could provide valuable insights into the effectiveness of teacher training programmes and the examination system itself. Based on this ground, this research seeks to delve into the success rate, perspectives of candidates, and their willingness and commitment to re-sit the TRCN PQEI among science education students enrolled for the exam at Federal University Gusau.

Research related to the TRCN PQEI is limited but essential. Previous studies have primarily focused on the examination system's structure, content validity, it's effectiveness on in-service teachers (e.g. Asuzu, 2019; Okon, 2020; Okoroma, 2010; Osiesi & Odinko, 2023). A study by Asuzu (2019) assessed the content validity of the TRCN PQE questions and found that they adequately covered key areas of pedagogy and subject knowledge. However, the study highlighted the need for continuous review and updates to ensure alignment with evolving educational standards. A study by Osiesi and Odinko (2022) explored the influence of TRCN registration on teaching effectiveness among secondary school teachers in Ekiti State, Nigeria. The research encompassed all Ekiti State secondary school teachers, with a sample of 150 teachers selected using a multistage sampling method. Findings indicated that many teachers have passed TRCN PQE and held positive views about TRCN's impact on their teaching effectiveness. Notably, teachers' gender significantly predicted their effectiveness. The study suggests the need for greater awareness about TRCN's role and increased licensing to enhance teachers' perception and overall professional development. Again, Osiesi and Odinko (2023) assessed teachers' attitudes toward the TRCN PQE in Ekiti State, with a sample of 149 secondary school teachers. Results indicated a positive attitude among teachers towards TRCN, its PQE, and its programmes. The study suggests a need for ongoing professional development to

reinforce and maintain this positive outlook among teachers. Another study by Okon (2020) examined the relationship between the TRCN PQE performance and teacher training programme quality. It found a positive correlation, emphasizing the importance of well-designed teacher education programmes in preparing candidates for success in the examination. Research by Ingersoll (2017) emphasizes that while pass rates provide a quantitative measure of success, candidate perspectives offer insights into the examination experience. Pass rates reflect the examination's effectiveness in assessing candidates' preparedness for teaching roles. A high pass rate may suggest that the examination lacks rigour, while a low pass rate could indicate that teacher preparation programmes are not adequately equipping candidates with the necessary skills and knowledge (Ingersoll, 2017). Candidate perspectives, on the other hand, encompass a wide range of factors, including the perceived difficulty of the examination, the relevance of the content to teaching practice, and the availability of support and resources during preparation. These perspectives are critical as they influence candidates' motivations, attitudes, and overall commitment to the teaching profession (Darling-Hammond, 2017).

While there is abundant literature on in-service teachers' perspectives on teacher certification examination, there is a dearth of research specifically addressing aspiring teachers within the context of the TRCN PQEI in Nigeria. This research aims to bridge this gap by investigating the experiences, challenges, and perspectives of science education students at Federal University Gusau who have sat for TRCN PQEI. By examining both the quantitative pass rates and candidate perspectives, this study seeks to offer an understanding of the TRCN PQEI experience at Federal University Gusau. Moreover, it aims to provide valuable insights into potential areas for improvement in teacher training programmes and the examination system to better serve the needs of aspiring teachers in Nigeria. Understanding the dynamics of TRCN PQEI among graduating science education students at Federal University Gusau holds paramount importance for several reasons. Firstly, it sheds light on the effectiveness of the university's teacher training programmes in adequately preparing students for the rigorous TRCN examination (Ingersoll, 2017). Secondly, to gain insights into the perceptions of aspiring teachers, potentially identifying areas where additional support or curriculum enhancements may be needed (Darling-Hammond, 2017). In addition, assessing the willingness of students to re-sit the examination following initial failure can inform policies aimed at nurturing persistence and continuous improvement in teacher certification (Lave & Wenger, 1991).

The TRCN PQEI serves as a critical benchmark for aspiring teachers in Nigeria, yet there is a gap in understanding the fluctuations in candidates' performance and their perspectives on the examination at Federal University Gusau. Furthermore, the willingness of students who did not pass to re-sit the examination and their commitment towards that remains an unexplored area. These identified gaps in knowledge necessitated a need for this research to inform targeted improvements in teacher certification processes and curriculum development.

Research Objectives

The main objective of the study is to examine the performance and perspectives of graduating science education students in TRCN PQEI at Federal University Gusau. The specific objectives of the study are to assess;

1. the performance of graduating science education students in the TRCN PQEI at Federal University Gusau throughout four academic sessions.
2. the perspectives of graduating science education students on the TRCN PQEI before and after taking the examination.
3. the willingness and commitment of graduating science education students who did not pass the TRCN PQEI to re-sit the exam.

Research Questions

The following research questions guided the study:

1. What is the performance of graduating science education students in the TRCN PQEI at Federal University Gusau throughout four academic sessions?
2. What are the perspectives of graduating science education students on the TRCN PQEI before and after taking the examination?
3. What is the willingness and commitment of graduating science education students who did not pass the TRCN PQEI to re-sit the exam?

Methodology

The research approach primarily involves documentary analysis and descriptive survey design methods for data collection. To determine the performance (percentages) among the candidates who sat for TRCN PQEI, historical examination records were obtained from the university's TRCN Desk Officer for documentary analysis. A structured questionnaire was administered to the students who have taken the TRCN PQEI. The questionnaire was used to collect data on candidate perspectives, including perceived examination difficulty, satisfaction with preparation before and after TRCN PQEI as well as their common concerns about the examination. The questionnaire contained a combination of dichotomous, Likert-scale questions and multiple-choice items. The questionnaire was validated and has a reliability coefficient of 0.86 using Cronbach Alpha.

The population of the study encompassed the entire final year science education students of the Department of Science Education from the Faculty of Education, Federal University Gusau who took the TRCN PQEI across the academic sessions of 2018/2019, 2019/2020, 2021/2022, 2022/2023 totalling 513 students. They studied Bachelor of Science in Education degrees with specialization in Chemistry, Biology, Physics, and Mathematics. Stratified random sampling was then employed to select a representative sample from this population, resulting in four strata based on academic sessions and degree programmes. Systematic random sampling was employed within each stratum to achieve the appropriate sample size of 217, as recommended by The Research Advisors (2006).

The questionnaire link was emailed and shared on the final year science education WhatsApp platforms using Google Forms yielding 201 submissions (i.e. 93% returned). The data collected were analyzed using percentages. Percentages of pass/fail were calculated by examining the number of students who passed/failed relative to the total number of students who attempted the examination in 2018/2019, 2019/2020, 2021/2022 and 2022/2023 academic sessions. Data were presented in cluster columns, bars and pie charts. The study adhered to ethical guidelines, including informed consent from the participants and ensuring the anonymity and confidentiality of their responses. Ethical approval was obtained from the Department of Science Education, Faculty of Education, Federal University Gusau, Zamfara State, Nigeria for data collection and use for the study.

Results

The findings of the study are presented in accordance with the research questions raised.

Research Question One: What is the performance of graduating science education students in the TRCN PQEI at Federal University Gusau throughout four academic sessions?

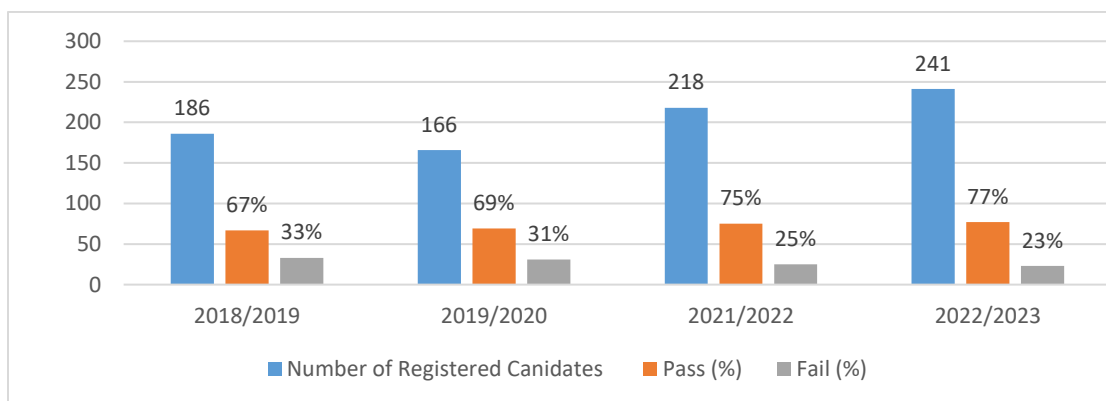


Figure 1: Performance in TRCN PQEI for four academic sessions

Figure 1 shows the performance of graduating science education students at Federal University Gusau in the TRCN PQEI over four academic sessions. The figure revealed that the number of registered candidates increased from 186 in 2018/2019 to 241 in 2022/2023, demonstrating growing interest and enrollment in the TRCN PQEI by science education students of the university. It further revealed that pass rates rose from 67% to 77% over the same period, while fail rates decreased from 33% to 23%, indicating a consistent improvement in student performance in the TRCN PQEI.

Research Question Two: What are the perspectives of graduating science education students on the TRCN PQEI before and after taking the examination?

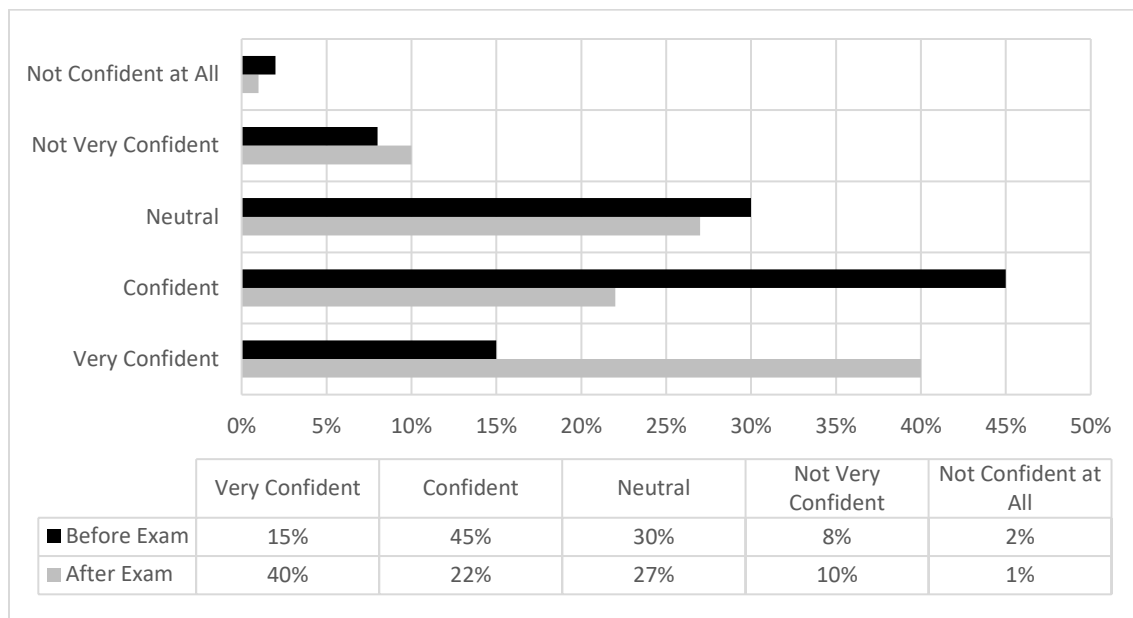


Figure 2: Comparison of candidates’ confidence levels before and after TRCN PQEI

Figure 2 reveals that there was a remarkable increase in the "Very Confident" category, with the percentage more than doubling from 15% before the exam to 40% after the exam. Conversely, the "Confident" category experienced a decrease from 45% to 22% after the exam. The "Neutral" category remained relatively stable, with a minor increase in the "Not Very Confident" category and a decrease in the "Not Confident at All" category. What were your expectations about the difficulty of the TRCN PQEI before taking the examination?

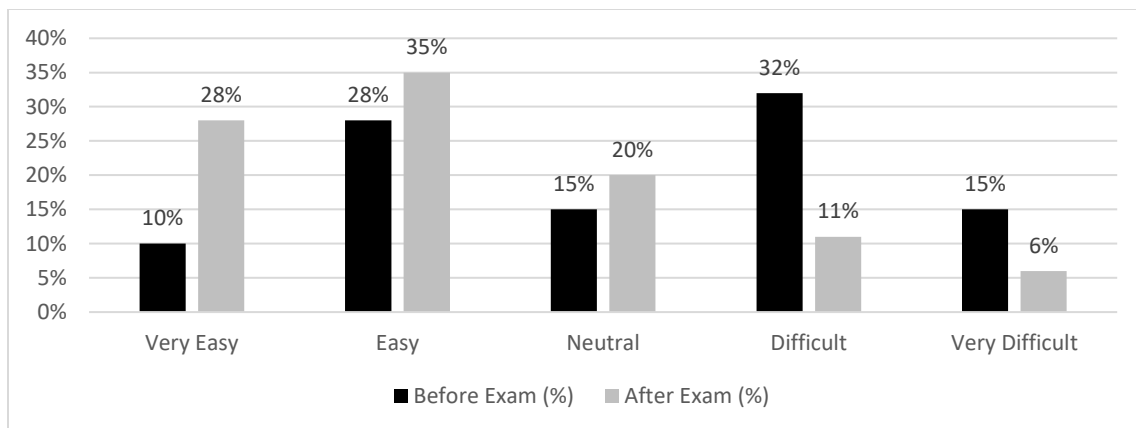


Figure 3: Candidates’ perceived difficulty of TRCN PQEI before and after examination

The data in Figure 3 reveals that, before the examination, a minority of candidates, 10%, anticipated that it would be "Very Easy," while a larger portion, 28%, considered it "Easy." A sizable number of candidates, 32%, believed the exam would be "Difficult," and 15% even expected it to be "Very Difficult." However, following the examination, there was a notable shift in candidates' perceptions. The percentage of candidates who regarded the exam as "Very Easy" increased to 28%, while the "Easy" category expanded to 35%. The proportion of candidates who maintained

a "Neutral" stance slightly grew to 20%. Most strikingly, the "Difficult" and "Very Difficult" categories diminished to 11% and 6%, respectively.

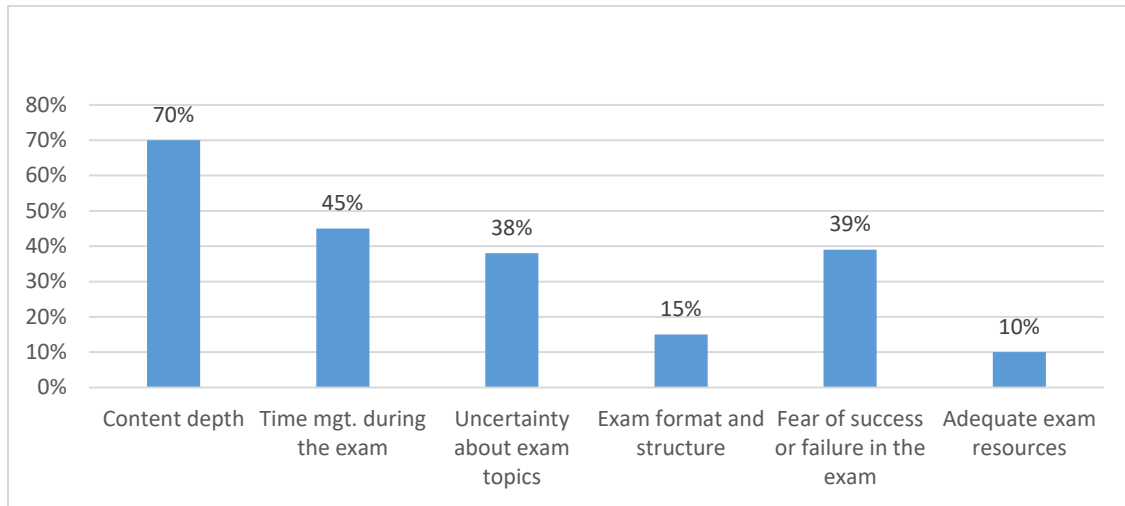


Figure 4: Common concerns of the candidates before TRCN PQEI

Figure 4 reveals that the content depth of the TRCN PQEI was the foremost concern at 70%, followed by time management during the exam at 45%. Uncertainty about exam topics concerned 38% of students, while fear of success or failure was noted by 39%. Exam format and structure worried 15%, and adequate exam resources were a concern for 10% of students.

Research Question Three: What is the willingness and commitment of graduating science education students who did not pass the TRCN PQEI to re-sit the exam?

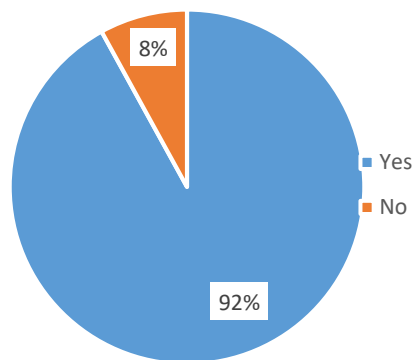


Figure 5: Re-sit willingness among unsuccessful TRCN PQEI candidates

Data in Figure 5 reveals that an overwhelming 92% of candidates are willing to re-sit the TRCN PQEI, while only a minimal 8% are not inclined to do so.

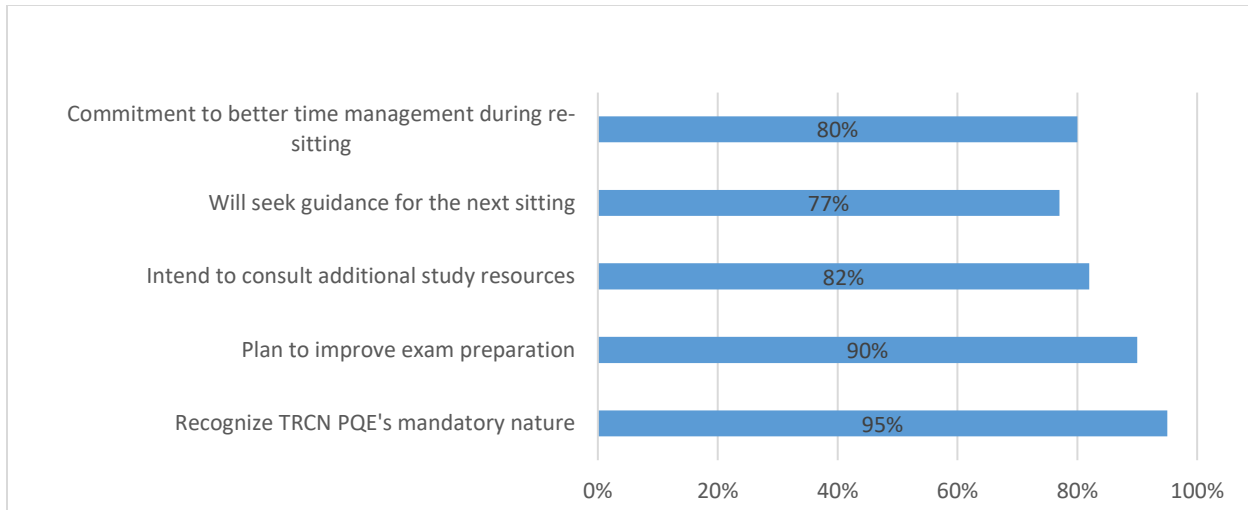


Figure 6: Failed candidates' commitment to re-sit the TRCN PQEI

Results in Figure 6 reveal that 95% acknowledged TRCN PQEI's mandatory nature, 90% plan improved preparation, 82% intend to consult additional reading materials, 77% seek guidance, and 80% commit to better time management in re-sitting.

Discussion

The research findings of this study titled Performance and Perspectives of graduating Science education students in TRCN PQEI at Federal University Gusau, offer valuable understanding into the performance trends, perspectives, and re-sit readiness of final year science education students about the TRCN PQEI at Federal University Gusau.

The finding of the study revealed that the number of students registered for the TRCN PQEI increased over the four academic sessions. This indicates either a growing interest in pursuing teaching as a profession or an increase in the number of students enrolled in science education programs at the university. The pass percentage generally increased over the years, indicating an improvement in the performance of the students. In 2018/2019, 67% of the candidates passed, which increased to 77% in 2022/2023. This suggests that either the students' preparation for the examination improved, or there were enhancements in the quality of education and teaching methodologies in the science education programmes in the Department of Science Education at Federal University Gusau. The pass rates observed in this study are consistent with Hattie and Timperley's (2007) assertion that various factors, including curriculum changes, teaching methodologies, and student support services, can influence student outcomes over time. The finding also supports the emphasis of Shepherd and Clifton (2015) on the role of targeted interventions in improving academic achievement.

The findings of this study on the student's confidence levels before and after taking the TRCN PQE resonates with research on the psychology of assessment. Bandura's self-efficacy theory (Bandura, 1977) suggests that authentic assessment experiences can positively influence students' self-confidence. The significant increase in the "Very Confident" category after the exam aligns with findings from previous research indicating that assessment experiences that promote self-efficacy can lead to improved academic performance (Zimmerman, 2000). The finding of this study's investigation into graduating science education students' perceptions of the TRCN PQEI's difficulty before and after taking the exam relates to research on the impact of assessment experiences on students' perceptions of task difficulty by Dörnyei and Ushioda (2011). Dörnyei and Ushioda (2011) indicated that assessment experiences can affect learners' perceptions of the difficulty and importance of tasks, potentially influencing their motivation. The observed shift in students' perceptions toward greater ease after taking the exam suggests that the examination experience itself can alter students' perceptions of the assessment's challenge.

The finding of this study reveals that an overwhelming majority (92%) of candidates who did not pass the TRCN PQE are willing to re-sit the exam aligns with research on students' re-sit decisions. This finding supported Isma'il

et al. (2023) and Yorke and Thomas (2003) reports that factors such as career aspirations and societal expectations can strongly influence students' determination to re-sit professional examinations. The commitment demonstrated by science education students of the Department of Science Education, Federal University Gusau stresses the significance and recognition of the TRCN PQEI as a mandatory for teachers' certification in Nigeria. More so, the study revealed graduating science education students' commitment to improvement, including plans to enhance preparation, seek guidance, and manage time effectively as strategies for exam re-sits. This finding is in line with Gijbels et al. (2005) who emphasized the importance of targeted study approaches, access to academic support, and effective time management in re-sit success. The commitment displayed by science education students of the Department of Science Education, Federal University Gusau to re-sit TRCN PQEI after failing the first attempt reflects their proactive approach to overcoming academic challenges and accentuates their dedication to the teaching profession.

Implications of the Study for Teacher Certification and Education Sector

Although the study only covers the TRCN PQE of four academic sessions of one university, its findings hold profound national implications for the quality and professionalism of teachers in Nigeria. The increasing pass rates indicate that the science education programmes at Federal University Gusau are becoming more effective in preparing students for the TRCN PQE. This could lead to a higher number of qualified science teachers entering the education sector, which is beneficial for the quality of education in Nigeria. The high willingness of students to re-sit the TRCN PQE emphasizes their commitment to meeting established professional standards. This commitment is crucial for building a highly qualified and skilled teaching workforce, which, in turn, can enhance the quality of education nationwide. A standardized teacher certification process, exemplified by the TRCN PQE, can enhance the international recognition of Nigerian teachers. This recognition, according to Ejima (2012) opens up opportunities for Nigerian teachers to engage in international educational exchanges, collaborations, and professional development programmes.

Conclusion

Based on the findings and discussions of the study, it could be concluded that the pass rates of graduating science education students at Federal University Gusau in four academic sessions varied, with higher improvement observed in the last session. Their perspectives after TRCN PQEI showed positive shifts in confidence, level of preparation and perceptions of exam difficulty, which reflect the dynamic nature of their experiences. A high willingness and commitment to re-sit the TRCN PQEI was demonstrated, signifying a strong passion for the teaching profession among those who initially did not pass. These findings have significant implications for teacher certification, education policy, and teacher training institutions in Nigeria.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. There should be regular assessments of the TRCN PQEI by the faculties of education in Nigerian universities and other teacher training institutions to identify areas of improvement.
2. Nigerian universities, other teacher training institutions and policymakers should establish effective support mechanisms for students preparing for the TRCN PQEI. This includes providing access to additional study resources, mentorship, and guidance to enhance students' preparedness.
3. Nigerian universities and other teacher training institutions should consider integrating TRCN PQEI preparation into their teacher training programmes. This can help students develop the necessary skills and content knowledge required to excel in the examination.
4. Efforts should be made to raise awareness about the mandatory nature of the TRCN PQEI among education students and the teaching community at large. This can reinforce the importance of teacher professionalism and adherence to established standards.
5. The curriculum should be reviewed periodically to ensure it remains relevant and aligned with the evolving needs of the education sector.

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