The Tension between Mental Age and Chronological Age in the Rwandan Education System

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ABSTRACT

This paper examines the tension between mental age and chronological age in Rwanda's primary education system and how mismatches between learners' cognitive readiness and age-based grade placement affect learning outcomes, situating the issue within post-independence education reforms such as the shift from knowledge-based to competency-based curricula, automatic promotion, changes in Primary Six examinations' style, and the use of double- and single-shift systems. Using a qualitative approach grounded in cognitive and developmental learning theories, the study draws on document analysis and interviews with primary school teachers, students and administrators to examine policy intentions and classroom realities. Results indicate that mismatches between mental and chronological age, compounded by automatic promotion, limited ICT access, and inadequate teacher preparedness, are strongly associated with underperformance and increased dropout risk, while chronological age alone shows only a weak correlation with academic achievement ($r = 0.28$, $p < 0.05$).The study concludes that assuming uniform learning pace among same-age learners creates systemic inefficiencies and argues for strengthening early assessment systems, enhancing teacher training in differentiated instruction, and promoting stronger collaboration among schools, parents, and community stakeholders to better align educational practices with learners' cognitive needs.

Keywords: Mental age, chronological age, education system

BACKGROUND AND CONTEXT

Since gaining independence in 1962, Rwanda's education system has undergone significant transformations, particularly after the 1994 Genocide against the Tutsi, which necessitated rebuilding both infrastructure and educational policy. Early systems were marked by inequality and limited access, but major reforms have since focused on expanding access, promoting equity, and modernizing instruction. Key shifts—such as the introduction of Universal Primary Education, competency-based curricula (since 2005), and automatic promotion—aimed to create an inclusive learning environment. However, these reforms often rely on chronological age for grade placement, overlooking students' varying mental age and cognitive readiness. This mismatch results in many learners being promoted despite not being developmentally prepared, leading to poor academic performance, disengagement, and classroom overpopulation. Structural issues such as double-shift schools, overcrowded classrooms, limited teacher capacity, and socio-economic disparities exacerbate these challenges. Moreover, as Hamlin, et al (2018) say, parental involvement remains essential, and while ICT and community partnerships have been introduced, individualized support is still insufficient. The growing tension between mental and chronological age highlights the need for more responsive and inclusive educational strategies in Rwanda.

General objective

Throughout this research, we sought to explore the challenges arising from the mismatch between learners' mental age and chronological age, particularly how this discrepancy affects academic performance, stigmatization and learner engagement within Rwanda's competency-based education system.

Specific objectives

The specific objectives are the following:

1. To identify the key challenges resulting from the mismatch between learners' mental age and chronological age in Rwandan primary schools.
2. To examine how this mismatch contributes to difficulties in academic performance and classroom engagement among learners.
3. To investigate how school-related factors—such as automatic promotion, large class sizes, and teacher preparedness—affect the extent and management of these challenges.

Research hypothesis

H_0 (Null Hypothesis):

There is no significant relationship between the mismatch of learners' mental and chronological age and the academic or engagement challenges they experience in Rwandan primary schools.

H_1 (Alternative Hypothesis):
There is a significant relationship between the mismatch of learners' mental and chronological age and the academic or engagement challenges they experience in Rwandan primary schools.

H_3 (Alternative Hypothesis):

Irregular or inconsistent changes in the education system negatively affect learners' ability to achieve permanent mastery of competencies.

RESEARCH METHODOLOGY

This study interrogates the pervasive challenges engendered by the incongruence between learners' mental and chronological ages, elucidating its ramifications on academic achievement and learner engagement within Rwanda's primary education framework. Like Swargiary, K. (2024) there are critical views upon educational stakeholders and policymakers, foregrounding the imperative of integrating cognitive developmental considerations into grade placement protocols. Furthermore, the investigation examines how episodic and irregular systemic reforms undermine the consolidation of competency mastery, thereby impeding educational continuity and efficacy. By situating these dynamics within the broader discourse of equity and inclusion, the research contributes to the reimagining of pedagogical strategies and policy strategies aimed at fostering a more adaptable and learner centered educational paradigm.

Significance of the Study

This study addresses the challenges caused by mismatches between learners' mental and chronological ages, which influence academic performance and classroom engagement in Rwandan primary schools. It provides insights for educators and policymakers on the importance of considering cognitive development in grade placement decisions. The research also explores how irregular changes in the education system affect learners' mastery of competencies, offering guidance for improving curriculum design. Ultimately, the study aims to support the development of a more inclusive and responsive education system that meets diverse learner needs.

LITERATURE REVIEW

Historical Evolution of the Rwandan Education System (1962 - 2025)

1962 to 1973: The Early Education System
The period following Rwanda's independence in 1962 saw the establishment of an education system primarily modeled after colonial structures that followed the Belgian style. However, the educational policies during this era were limited in scope and access, particularly for rural and disadvantaged communities. The elite education system disproportionately benefited the urban middle and upper classes (Ansoms, 2009). The focus was on

preparing students for administrative roles, leaving most rural students without access to quality education Sibomana, Bizimana, Havugiyaremye, &Ndokoye, 2025)

1973 to 1994: Expansion and Challenges

From 1973 onwards, the government made efforts to expand education and provide greater access for all citizens, including those in rural areas. Education was seen as a tool for national unity and development. Rugengande (2008).The introduction of the "Sans Échec" rule (50% pass mark) was intended to encourage academic success, but disparities in resources, infrastructure, and teacher quality persisted as per notice there were very few people with a Bachelor's degree in all sectors.

1995 to 2005: Reconstruction and Universal Access

The 1994 genocide had devastating effects on the education system, but by 1995 Rwanda focused on rebuilding both its physical and human capital (Longman, 2017). The introduction of universal primary education (UPE) in 2003 aimed to eradicate illiteracy and increase school enrollment nationwide although there were few stable schools after such darkness. The automatic promotion policy came into effect to reduce repetition rates, improve internal efficiency, reduce dropout rates. During this period, no child was left behind, regardless of academic performance.

2005 to 2015: Competence-Based Curriculum

In 2005, Rwanda transitioned towards a Competency-Based Curriculum (CBC), emphasizing practical skills and competencies over rote memorization (Nsengimana, 2020). This shift sought to align education with the changing needs of the global economy, preparing students not only for academic success but also for practical careers. The integration of ICT played a pivotal role in enhancing the curriculum and broadening access to educational resources. According to Munyengabe et al (2017). Primary teachers' benefited a lot with the integration of ICT in teaching and learning but they still need more practice and trainings to continue the pathway.

2015 to Present: Current Challenges and Innovations

Uwizeyimana (2019) advance the idea that the progress to link the 2020 vision was accelerated by ICT in all sectors including education. Rwanda has focused on ICT integration in education and vocational training as an alternative educational pathway. Despite these advancements, significant challenges remain, particularly in terms of student retention, performance and dropout rates, especially in rural areas (Karim et al, 2021).

According to Niyonzima (2025) Rwanda's gender equality policies in education have significantly improved girls' employment opportunities by promoting access, retention, and empowerment. Technical and Vocational Education and Training (TVET) has been positioned as a key alternative to traditional academic education, particularly for learners whose mental age or cognitive development may not align with conventional academic structures ([not a standard because some performing learners may also follow it]). By focusing on practical skills and hands-on training, TVET provides a more flexible and inclusive learning pathway that accommodates diverse learning needs. This approach not only enhances employability but also promotes social and economic inclusion for students who may struggle in purely academic settings. Nduwimana, S., & Sindayigaya, I. (2023).

Mental Age versus Chronological Age in Context

The Concept of Mental Age

Mental age refers to an individual's intellectual maturity and cognitive abilities, which may not always correspond to their chronological age. In educational settings, this misalignment can result in a lack of engagement or academic failure. According to Chapman, et al (2002). Mental age is influenced by various factors such as learning disabilities, socioeconomic status, and access to early childhood education. Other studies in Rwanda have shown that learners with developmental delays or learning difficulties often struggle in standard classrooms designed for average chronological benchmarks (Munyaneza, 2020).

Chronological Age and Academic Expectations

With Collins (2000) traditional educational systems have been structured around chronological age, with students advancing from grade to grade each year based on their birth date. However, this approach often fails to account for differences in cognitive development. For instance, a student who is older but cognitively slower may be expected to perform at the same level as a younger but more advanced peer, leading to academic struggles. In Rwanda, this mismatch is frequently observed in lower primary levels, particularly in rural areas where access to early childhood education is limited. As a result, learners may experience stigma within the classroom environment (Hanson, 2015).

Automatic Promotion and Its Impact

Rwanda's policy of automatic promotion intensified this issue. According to Okurut (2015) the impact of automatic promotion cannot be viewed in isolation, as examining its effects at these grade levels also brings to light other interconnected factors that shape students' learning outcomes. While well-intentioned, it can lead to students progressing to higher grades without the foundational knowledge required to succeed. This practice contributes to the widening gap between students' mental age and their academic level, ultimately leading to frustration and disengagement. Research by Tante (2024) suggest that one key advantage of the automatic promotion is is the potential for cost savings for both the government and education stakeholders. Moreover, minimizing or eliminating grade repetition can improve completion rates by lowering dropout rates and extending the time low-achieving students remain in school as said above.

Educational Implications

The mismatch between mental and chronological age presents challenges for teachers. Differentiated instruction, which caters to diverse learning needs, is one potential solution. Teachers must recognize the varying cognitive levels of their students and adapt their teaching methods accordingly. Nyiramana (2023) highlights that student teachers' learning experiences are strongly shaped by the nature of feedback they receive during their academic journey, especially throughout teaching practice. Within the Rwandan context, evidence from successful remedial learning programs indicates that mixing instruction to learners' cognitive abilities, rather than strictly following their chronological age, leads to greater learner engagement and improved academic outcomes.

Briefing the Curriculum Evolution in Rwanda

Knowledge-Based Curriculum (Before 2005)

Before 2005, Rwanda's education system used a Knowledge-Based Curriculum (KBC) that focused mainly on memorization and rote learning. Nizeyimana et al (2021) has tied it to gender and education by saying that Textbooks and curriculum content play a crucial role in shaping students' long-term perceptions of gender roles. In the context of the pre-2005 Knowledge-Based Curriculum in Rwanda, educational materials often reflected and reinforced traditional gender stereotypes. Stories and examples frequently portrayed men and boys in active, leadership roles, while women and girls were shown in passive or domestic positions. These repeated representations influenced how learners understood the social value and capabilities of each gender, often limiting girls' aspirations and reinforcing gender inequality.

According to Ndihokubwayo &Habiyaremye (2018) the so called "traditional method" was critical because many teachers lack necessary skills to foster deep understanding, limiting students' ability to apply knowledge meaningfully. As a result, learners struggle to become intelligent and independent users of what they are taught in school. Thus to shift to competence based curriculum. This system did not consider individual differences in cognitive development, as students were grouped and assessed strictly by age. They were evaluated based on their ability to recall information rather than apply it in real life.

Competency-Based Curriculum (2005–Present)

The idea got through in 2005 and got to be implemented in 2015 when the **Curriculum Framework for Competence-Based Learning** was published by REB. Nsengimana, (2020) confirmed that "Rwanda shifted

from knowledge and skills acquisition learning to critical thinking, creation and innovation, research and problem solving, communication, cooperation, interpersonal life skills and lifelong learning competencies (p.1)"

In 2015, the official guiding document from Rwanda Education Board changed to Rwanda Basic Education Board since 2020 was launched and it shifted the focus from memorizing facts to building practical skills that students can use in everyday life. According to Nshimiyimana & Andala (2024). The Competency-Based Curriculum (CBC) is recognized for equipping graduates with practical skills to navigate labour market challenges. It emphasizes the development of relevant competencies aligned with global workforce demands. According to REB (2015), CBC also promotes international standards in education and professional performance worldwide.

Impact of Curriculum Reforms on Learner Development

According to Campbell-Phillips (2020) "Curriculums are learning guides that are governed by a school board that is designed to address students' educational needs, facilitate learners while establishing relationships between teachers and students." (p.1074) because it emphases on the needs of students when it changes it have to affect more on their career with purpose, practice and examination. It is indisputable to change the curriculum due to the country status, synchronizations, upgrading standards with growth, social significance and nature of the world economy.

The CBC helps reduce the gap between learners' mental and chronological ages by encouraging personalized and active learning (REB, 2015). However, its effectiveness depends on how well teachers apply learner centered methods and adapt to the needs of different students. What remains after a change is to know how teachers adapt to changes and challenges from all the updates (Ndihokubwayo, 2018). Quality primary education as referred to "moteur" by Vincent (1964), is fundamental for upgrading all other levels of education, as it builds the foundational literacy, numeracy, and cognitive skills required for future academic success.

Academic Performance and Low Pass Marks

Before the curriculum reform, the pass mark in Rwandan schools was **50% and above**, and learners' progression depended on deliberation outcomes marked by terms like "promoted, repeated, transferred, or renvoyé definitif"[1]. Under the **Knowledge-Based Curriculum (KBC)**, failing students could still undergo a **second sitting** to improve their marks before a repeat decision was made. A student's knowledge, skills, and past experience directly shape their exam preparation strategies and confidence levels. According to Musengamana et al (2024). These factors also influence how they cope with gaps in understanding during the exam itself. Limited competencies or poor preparation often result in underperformance, contributing to low pass marks. In 2008, Rwanda officially adopted **English as the language of instruction** from Primary 4 onward, replacing French, which had been dominant since colonial times. This shift aligned with Rwanda's integration into the East African Community and its accession to the **Commonwealth** (MINEDUC, 2009). While **Kinyarwanda remained the medium** for lower primary (P1–P3), the abrupt change posed challenges, especially for teachers trained in French. It has backed to English in all learning levels around 2018- 2019. (Samuelson & Freedman, 2010). Despite these hurdles, the reform aimed to boost regional integration and global competitiveness.

However, with the introduction of the **Competency-Based Curriculum (CBC)** in **2015**, pass marks were adjusted to **40% and above**, influenced by policies such as **automatic promotion** (Ndihokubwayo, 2020). The CBC replaced the previous deliberation system with only three options: promoted, repeated, and transferred, reducing the strict academic barriers. To address widening learning gaps, **holiday and weekend remedial programs** were introduced nationwide starting in the **2024–2025 academic year** as an intervention before repetition decisions (MINEDUC, 2024). Therefore, the ongoing refinement of well-defined competencies is essential for improving academic performance, as clear goals and effective assessments are

[1] When the language of instruction was French to mean "Expelled permanently"

key to reducing **low pass marks** and ensuring students achieve expected learning outcomes though "consistent observational processes"(Mbarushimana & Kuboja, 2016, p.6).

Parental Involvement, Socio-Economic Factors, and the Risk of Dropout

Parents play very impeccable role in students' academic persistence and success. In Rwanda, students whose parents offer both financial and emotional support tend to stay in school longer and achieve better academic outcomes. This support ensures that learners have access to necessary materials, regular meals, and a stable home environment conducive to studying. Research by Huisman and Smits (2015) indicates that household poverty directly affects school attendance, retention, and performance. This highlights the critical role of a parental support in students' daily lives at home and school. In addition to this Maligalig et al. (2010) emphasize that children from supportive and educated households are more prepared to learn and less likely to drop out.

However, children from impoverished or unstable family environments are more likely to drop out due to unmet basic needs and limited academic support. Poverty hinders their cognitive development and school readiness (Mental age), and grade-level expectations (Chronological age). This misalignment often results in poor performance, repetition, or early dropout. As Huisman and Smits (2015) explain, poverty significantly undermines educational access, retention, and achievement. These socio-economic disparities contribute to a cycle where students' learning potential is limited by external pressures rather than their cognitive abilities (Sanz, 2024).

The Role of Remedial learning to restrain foundational learning gaps

Remedial learning programs are of many practices. Some happens during the teaching and learning process, at the end of a unit, during weekends and holidays. Referring to Rwandan context, we choose the remedial learning Program that is done in term 3 of every end year or weekends by choice for all or leaving candidates[2].

In fact it is "a reservation to extra support to learners who have not met expected outcomes throughout a year"[3] These interventions are strategically designed to close literacy and numeracy gaps that hinder equitable learning (MINEDUC, 2020). Many learners begin school with limited school readiness, making it difficult to follow the standard curriculum (World Bank, 2021). Remedial approaches help to reduce negative impact of such early developmental mismatches. They offer targeted instruction with individual learning levels rather than age-based grade placement (Banerjee et al., 2016). This strategy supports struggling learners in building confidence and progressing at their own pace (UNICEF, 2022). Moreover, remedial programs align with inclusive education policies by fostering classroom equity and preventing dropouts. Teachers trained in remedial methods use learner-centered approaches, ensuring no child is left behind (UNICEF, 2022. Recently the government started remedial learning at all levels from lower primary literacy and numeracy and upper primary with core subjects and finally secondary for leaving candidates.

Research Methodology (design) and participants

According to Creswell, J. W., & Creswell, J. D. (2017) a research design is the structured plan to address questions and hypotheses. For the topic "Tension between mental age and chronological age", this study will adopt a **descriptive correlation design** to examine the relationship between learners' cognitive development levels and their actual chronological ages in Rwandan primary schools through qualitative and quantitative data of both numerical and narrative data from teachers, students, and parents. The design was chosen to

provide a comprehensive understanding of the issue. Amongst 230 participants, 150 are primary school students (aged of 9–14), 50 teachers from lower and upper primary, and 30 educational administrators and stakeholders from various public and private schools across Rwanda. These participants were selected through purposive sampling to ensure that diverse perspectives from different socio-economic backgrounds were represented.

[2] To mean P6,S3 and S6

[3] The expectation is a pass mark of 50%

Table 1: **Participants and their category, methods and remarks**

The study used purposive sampling to target specific groups relevant to academic performance and school functioning. The participants' age ranges and roles ensured representation across students, teachers, and administrators. This approach allowed the collection of focused observations while capturing diverse perspectives from different schools and communities

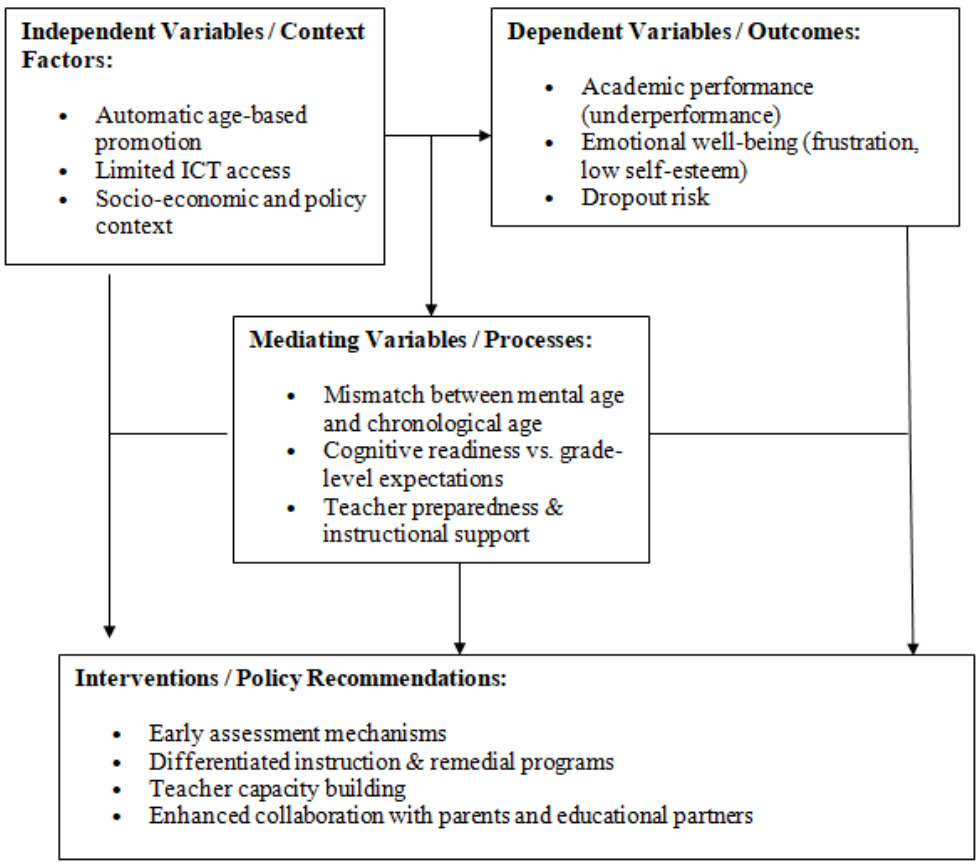
Category	**Number of Participants**	**Age Range / Role**	**Selection Method**	**Remarks**
Primary School Students	150	Ages 9–14 Students	Purposive Sampling technique	From some public and private schools across Rwanda's province
Teachers	50	Ages 20-64 Teaching Staff	Purposive Sampling technique	Representing different socio-economic and education backgrounds
Educational Administrators	30	Ages 30-56 School leadership/management	Purposive Sampling technique	Ensured inclusion of diverse institutional views among the community.

Source: Primary data, 2025

Instrument and research framework

Data for this study was collected using surveys, interviews, and document analysis. Structured questionnaires were administered to students, teachers, and administrators to assess academic performance, cognitive versus chronological development. Additionally, document analysis of education policies, reports, and statistical data locally and internationally helped contextualize student performance and dropout trends as mentioned by Choudhari (2024).

Research framework



Data Analysis

Dickinson and Larson (1963) examined how differences in students' chronological age in months impact their school achievement levels. Their study highlighted that even small age variations within the same grade can influence academic performance. Data collected from surveys were analyzed using descriptive statistics to examine patterns in student performance and dropout rates. Correlation analysis was used to determine the relationship between chronological age, mental age, and academic achievement.

Findings and correlation

➢**Automatic Promotion and Academic Performance**

Students promoted automatically without meeting grade-level standards showed lower academic performance and reported feeling overwhelmed and disengaged in a classroom set up. This supports **H_3**; as such irregular changes in the education system disrupt the consolidation of knowledge, preventing learners from achieving permanent mastery of competencies. From a Developmental Learning Theory perspective (Vygotsky, 1978), these students were advanced beyond their developmental readiness, denying them the scaffolding needed for effective progression.

➢**Mental vs. Chronological Age**

A notable portion of learners had mental ages misaligned with their chronological ages, leading to foundational skill gaps, lower pass rates, and higher dropout rates especially in rural schools with limited remediation resources. This finding directly supports **H_1**, showing a significant relationship between mismatches in cognitive maturity and academic or engagement challenges. According to Cognitive Learning Theory (Piaget, 1972), such mismatches create cognitive overload, reducing the learner's ability to assimilate new concepts effectively.

➢**Parental Involvement**

Learners with actively involved parents achieved better academic out comes, rural contexts often limited such involvement due to financial and educational constraints. Both CognitiveandDevelopmental Learning Theories highlight the role of external support systems such as parental guidance in reinforcing knowledge and aiding developmental readiness. Limited parental engagement therefore leads to the negative effects of mental chronological age mismatches and inconsistent educational progression.

Table 2: Key themes, findings and generated implications

The findings reveal significant gaps between students' mental and chronological ages, affecting academic outcomes. Automatic promotion and limited ICT access intensified these learning disparities. Teacher preparedness and cognitive readiness are critical factors influencing performance and dropout risks.

No.	Key Theme	Evidence / Statistical Insight	% / Rate	Implication
1	**Mismatch between Mental & Chronological Age**	96 of 150 students were found to perform below their grade level expectations.	64%	Indicates a strong predominance of cognitive gaps affecting performance.
2	**Impact of Automatic Promotion**	36 of 50 teachers reported that automatic promotion results in unprepared learners in upper grades.	72% (Teachers' view)	Suggests automatic promotion aggravates foundational learning gaps.
3	**Dropout Risk Linked to Cognitive Gaps**	Document analysis showed high dropout in P5–P6 where mental age lags behind.	18% dropout rate	Mismatch contributes significantly to dropout, especially before national exams.
4	**ICT Access and Learning**	53 of 150 students had consistent access to digital learning resources	35%	Limited ICT access widens performance gaps between urban

	Disparities	at home or school.		and rural learners.
5	**Teacher Preparedness to Handle Mixed Abilities**	30 of 50 teachers felt underprepared to handle learners with developmental delays or slower pace.	60%	Indicates a need for capacity building in inclusive and remedial teaching approaches.
6	**Correlation Between Chronological Age and Performance**	Pearson correlation showed weak positive correlation (r = 0.28) between age and academic scores.	r = 0.28 (p < 0.05)	Age alone is not a strong predictor of academic performance—mental readiness matters more.

Source: Primary data, 2025

Table 3 : Tools and generated evidence notes

The data highlights a clear tension between policy and practice, where automatic promotion advances students without ensuring readiness. Teachers and parents observe skill gaps that create classroom challenges and student stress. Limited ICT access and insufficient remediation strategies further widen learning disparities.

Data Collection Method	Key Findings	Evidence of Discrepancy/Tension
Surveys	- Many students promoted automatically lacked foundational skills. - Limited ICT access provokes learning gaps.	- Students in higher grades struggled with basic literacy and numeracy tasks.
Interviews	- Teachers observed mismatches between students' actual abilities and grade level expectations. - Parents noted delayed cognitive development in their children.	- Teachers felt instructional pressure; students showed emotional distress.
Document Analysis	- Policies emphasize age-based promotion but lack clear remediation strategies. - Dropout data correlates with poor foundational skills.	- Policy-practice gap highlighted tension in managing cognitive diversity.

Source: Primary data, 2025

DISCUSSION

The findings of this study indicate that, despite the good intentions behind the automatic promotion policy, it often exacerbates a mismatch between learners' mental and chronological age. Automatic age-based promotion, combined with limited ICT access and insufficient remedial strategies, creates a significant gap between students' cognitive readiness and grade-level expectations, negatively affecting academic performance and emotional well-being. Without targeted support or differentiated instruction, learners who are not cognitively prepared for higher grades struggle to keep pace with their peers, resulting in frustration, low self-esteem, and increased risk of dropout. These results highlight the need to align educational policies with classroom realities by implementing early assessment mechanisms, providing individualized remediation, and enhancing teacher capacity to manage diverse learning needs effectively.

CONCLUSION AND RECOMMENDATIONS

In a few words, this study winds up that the tension between mental age and chronological age in the Rwandan education system contributes significantly to academic underachievement and high dropout rates. It is recommended the following approaches to be a focus namely:

1. **Differentiated Instruction**: Teachers should be trained to use differentiated instruction techniques to cater to diverse learning needs in the classroom.
2. **Remedial Learning Programs**: Remedial programs should be expanded, especially in schools with high dropout rates, to provide additional support to students who are falling behind.
3. **Increased Vocational Education Access**: Policies should be introduced to make vocational education more accessible and appealing to students who may not thrive in traditional academic settings.
4. **Improved ICT Access**: Efforts should be made to provide equal access to ICT resources, particularly in rural schools, to embrace the 21st century skills.
5. **Parental Engagement**: Initiatives to encourage parental involvement in education should be strengthened, especially in communities where parents are less educated.

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