

The Paradox of CBC Implementation: Why Does Teacher Training Fail to Translate to Mastery of Curriculum Assessment and Learning Improvement in Public Elementary Schools?

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Abstract:

This study examines the complexity of implementing the Competency-Based Curriculum (CBC) in public primary schools in Igembe Central Sub-district, Kenya, a crucial education reform aimed at shaping 21st-century skills. Although CBC implementation efforts have been made, challenges such as inadequate syllabus coverage, ineffective teaching methods, and suboptimal learner learning outcomes remain a serious concern. This study aims to investigate the influence of teacher training on the implementation of CBC in these schools. Adopting a mixed methods approach with a concurrent triangulation research design, the study collected data from 394 participants through questionnaires, interviews, observations, and document analysis. Quantitative data were analyzed using descriptive and inferential statistics (SPSS Version 25), while qualitative data were analyzed thematically. The study's results revealed that the implementation of CBC remains a primary concern in the Igembe Central Sub-district public elementary school. A significant proportion of teachers do not complete the syllabus, resulting in substandard student learning outcomes in critical areas. This is mainly due to the lack of adequate teacher training related to curriculum-based assessments. The findings of this study imply the importance for the Ministry of Education (MoE) to sustainably pursue teacher training and retraining programs to address identified competency gaps, in order to enhance the effectiveness of CBC implementation.

Key Words: Teacher Training, Implementation of Competency-Based Curriculum, Public Primary Schools

INTRODUCTION

The implementation of the Competency-Based Curriculum (CBC) is a crucial issue in global education reform, aiming to prepare learners with 21st-century skills that are relevant to socio-economic needs (Hussein, 2023; Islam et al., 2025; Sadeq et al., 2021). However, the success of its implementation is often hindered by complexities that cannot be fully understood. This problem extends beyond academic achievement, encompassing internal school dynamics, teacher readiness, and community perception. In the public primary school of Igembe Central Sub-district, Kenya, although CBC implementation efforts have been

made, challenges such as inadequate syllabus coverage, ineffective teaching methods, and suboptimal learning outcomes are still a serious concern (Atuhura & Nambi, 2024; Issa et al., 2024; Waruingi et al., 2022). This phenomenon demonstrates that a deep understanding is not sufficient with quantitative data on learning outcomes alone, but also requires a qualitative exploration of the experiences, perceptions, and challenges faced by stakeholders in the field. Therefore, this study seeks to answer this complexity through an integrated approach.

The problem of curriculum implementation can be examined through the theoretical lens of organizational readiness for change that emphasizes the importance of individual preparation and involvement in the change process (Du et al., 2022; van den Hende et al., 2023; Wang et al., 2023), as well as curriculum implementation theory that focuses on the relevance of the curriculum to the needs of students and society (Abdalla et al., 2025; Coskun Yasar & Aslan, 2021; Zwolińska et al., 2022). Empirically, previous studies in Kenya have highlighted that teacher training is a crucial pillar in the implementation of CBC, while also revealing a significant competency gap among learners (Gichuru et al., 2021; Nsengimana et al., 2025; Sadeq et al., 2021). These findings suggest that, despite training efforts, challenges persist in mastering basic skills, such as numeracy and literacy. The relationship between theoretical approaches and field problems demonstrates that analysis from only one data perspective, whether narrative or numerical, will not capture the nuances of existing complexity; thus, it requires the simultaneous exploration of two data perspectives.

Various previous studies have examined the implementation of the curriculum, both quantitatively and qualitatively. Some previous research has shown that the implementation of CBC is still at a low level, with most learners having literacy and numeracy skills below expectations (Almaghrabi et al., 2024; Jeong & González-Gómez, 2021; Kahveci & Güneyli, 2023). While these statistical data provide a general picture of "what" is happening, they lack a clear explanation of "why" or "how" the challenge arises on the ground. On the other hand, qualitative studies, such as those by Nguyen et al. (2022), have discussed the importance of teacher training in understanding curriculum philosophy; however, they have not comprehensively integrated the impact of the training with measurable learning outcomes. This gap creates a need for an integrative approach that can bridge statistical information with experiential narratives, providing a richer understanding of the factors that hinder or support the effective implementation of CBC.

An apparent notable gap in the literature is the lack of a comprehensive understanding of CBC implementation that systematically combines quantitative and qualitative perspectives in a single study. A single approach, both large-scale surveys and in-depth case studies, is insufficient to fully capture the complexity of this phenomenon. Therefore, *mixed methods* were chosen as the most suitable methodological strategy. Theoretically, this approach enables data triangulation,

where findings from one method can be confirmed or enriched by another, thereby increasing the internal and external validity of the research (Donkoh, 2023; Hendren et al., 2023; Sridharan, 2021). Methodologically, the explanatory sequential design allows researchers to identify common patterns through quantitative data, which are then explained and further explored through qualitative analysis. This approach is logically based on the need to know not only "how much" or "how often" problems occur, but also the "why" and "how" of those problems experienced by stakeholders.

The integration of quantitative and qualitative data in this study provides significant added value, resulting in a more comprehensive, in-depth, and applicable understanding of the implementation of CBC. Quantitative data provide an overview of the prevalence and relationships between variables, such as learning attainment levels and the influence of teacher training, allowing for generalization of outcomes. Meanwhile, qualitative data offers context, nuances, and in-depth explanations of the subjective experiences of teachers, principals, and parents, revealing the reasons behind quantitative patterns. This synergy not only strengthens the external validity of the findings by providing statistical support but also enhances the internal validity by elucidating the underlying mechanisms and processes. Thus, this study not only identifies problems but also provides insights that can be used to design more targeted and sustainable interventions, aiming to improve the quality of CBC implementation in the field.

Based on the complexity of the issues and research gaps identified, the primary objective of this study is to assess the level of implementation of the Competency-Based Curriculum (CBC) in public elementary schools within Igembe Central Sub-district, and to analyze the impact of teacher training on its implementation. To achieve this goal, quantitative data will be used to measure the extent to which CBC has been implemented and to statistically test the relationship between teacher training and learner outcomes. Meanwhile, the qualitative data will explore in depth the perceptions and experiences of stakeholders regarding the challenges and successes of implementing CBC, providing context and explanation for the quantitative findings. The scope of this study was limited to public elementary schools in Igembe Central Sub-district, focusing on variables related to teacher training, curriculum implementation processes, and student learning outcomes. It is hoped that the synergy of these two approaches will result in more comprehensive and relevant policy and practice recommendations.

RESEARCH METHODS

This study adopts a *mixed-methods* approach with an explanatory sequential design (*Sequential Explanatory Design*), which systematically integrates quantitative and qualitative data to provide a comprehensive understanding of the implementation of the Competency-Based Curriculum (CBC) in public elementary schools in Igembe Central Sub-district. The design selection was

based on the assumption that complex social phenomena, such as curriculum implementation, cannot be fully explained by numerical or narrative data alone, and therefore require layered exploration (Alshammari et al., 2023; Antony et al., 2023; Haynes-Brown, 2023). The quantitative component used a descriptive survey design with a population of 23,015 individuals and a sample of 394 participants calculated using the Yamane Formula, taken through *Stratified* and *Simple random sampling* for school principals (26), parent representatives (78), teachers (156), and students (132), as well as a census for Sub-district Education Directors (2). Quantitative data were collected using a structured questionnaire, the validity of which was confirmed through trials and expert reviews, and its reliability was measured using Cronbach's alpha. Furthermore, the qualitative component employs a case study approach, selecting key informants through *purposive sampling*, which involved 21 school principals, 61 parent representatives, and 2 Sub-district Education Directors. Qualitative data collection techniques include in-depth interviews, participatory observations, and document analysis, with the validity of the data guaranteed through triangulation, *member checking*, and *audit trails* (Bathran & Samuel, 2024; Cleland et al., 2021; Enworo, 2023).

Data analysis is done separately for each component before integration. Quantitative data were analyzed descriptively (percentage, mean, and frequency distribution) and inferentially using linear regression with SPSS Version 25 to test the relationship between teacher training and CBC implementation. Meanwhile, qualitative data were analyzed using a thematic approach, involving interview transcription, open coding (*Open Coding*), grouping the code into categories, and identifying the main themes of the participant narrative (Campbell et al., 2021; Jowsey et al., 2021; Zwarthoed, 2025). This process of thematic analysis allows researchers to uncover the subjective meanings and experiences that underlie quantitative findings. Data integration is carried out at the interpretation stage, where qualitative findings are used to explain, deepen, and contextualize statistical results (Bathran & Samuel, 2024; Cleland et al., 2021; Haynes-Brown, 2023).

The use of a mixed-methods approach in the study has a strong theoretical and methodological justification, allowing researchers to overcome the limitations inherent in a single method. Quantitative data provides generalizations and a broad overview of patterns, while qualitative data offers depth, context, and a rich understanding of the human experience behind the numbers. The integration of these two types of data not only enriches the research results but also simultaneously enhances internal validity (through more comprehensive explanations) and external validity (through generalization capabilities supported by deep context). As affirmed by Sridharan (2021), the blended approach enables researchers to answer complex research questions more comprehensively, providing a more holistic perspective and nuances that are not possible to obtain from a single method alone. Thus, this methodology

ensures that the research findings are not only statistically valid but also socially relevant and meaningful.

RESULTS AND DISCUSSION

Result

This chapter presents the study's findings about its objective, while also focusing on the approach used to present the findings and the subsequent discussions.

Response Rates

In this research, 156 questionnaires were distributed to teachers; however, 139 were completed and returned. Additionally, 21 headteachers, along with 61 parents' representatives and Sub-county Directors of Education, were interviewed. The collected data have been presented in Table 1.

Table 1. Response Rates			
Respondents	Sampled Respondents	Those Who Participated	Achieved Return Rate (%)
Headteachers	26	21	80.8
Teachers	156	139	89.1
Parents' representatives	78	61	78.2
Sub-county Directors of Education	2	2	100.0
Primary School Pupils	132	126	95.5
Total	394	349	88.6

Source: Field Data (2025)

Based on Table 1, the response rates of different groups of respondents showed significant participation. It was seen that almost all principals (80.8%), teachers (89.1%), parent representatives (78.2%), and elementary school students (95.5%) responded in this study. Specifically, all Sub-district Education Directors (100.0%) participated. Thus, the overall average response rate reached 88.6%, indicating that nearly all participants provided valid responses to the data analysis.

Status of Implementing Competency-Based Curriculum in Public Primary Schools

This study evaluated the implementation of the Competency-Based Curriculum (CBC) in Igembe Central Sub-district public primary schools, revealing that most learners still fall below expectations in numerical and language skills, despite showing potential in areas such as creativity, while also facing challenges in essential life skills. These findings highlight the need for further attention to achieve optimal CBC learning outcomes. Table 2 presents the descriptive data collected from teachers, illustrating the study's findings.

Table 2. Implementation of Competency-based Curriculum in Public Primary Schools

Learning Outcomes of Learners	Exceeding Expectations	Approaching Expectations	Below Expectations
	%	%	%
Manifestation of competencies in number work skills	31.7	18.0	50.3
Showing the ability to undertake language tasks like reading, writing, and oral activities	30.2	20.9	48.9
Showing competencies in creativity	45.1	25.6	29.3
Ability to undertake tasks in essential environmental or life activities	33.8	27.3	38.9
Source: Field Data (2025)			

Table 2 presents descriptive data on the implementation of Competency-Based Curriculum (CBC) in public elementary schools. In basic numerical skills, half of the teachers (50.3%) reported that learners were below expectations, while a small percentage (31.7%) exceeded expectations. For language skills, almost half of the teachers (48.9%) indicated that learners were below expectations, with a small proportion (30.2%) exceeding expectations. Interestingly, almost half of teachers (45.1%) reported that students exceeded expectations in creativity. However, in essential environmental or life skills, almost half of teachers (38.9%) stated learners were still below expectations. These findings highlight key areas in CBC implementation that require further attention and refinement.

Thematic Analysis

The headteachers and parents who participated in the interview agreed with the statement that teachers often fail to meet the syllabus timelines, resulting in the vast majority of students achieving subpar learning outcomes in cornerstone learning outcomes, specifically within CBC. Headteacher, H1, noted, "In my primary school, my teachers rarely finish their syllabi on time. Here and there, learners are rushed through some content so that the syllabus can be covered. This has negatively affected the learning outcomes of pupils in Public Primary Schools." Parents' representatives also admitted that their children still exhibit dismal outcomes in basic numeracy activities as well as languages. Parents' representative, PR1, noted, 'In my school, many of our children cannot perform basic number work operations; their communicative competency is still poor, and they lack innovativeness.' However, they manifest little mastery of basic environmental skills such as naming objects in their vicinity".

It was also noted that many primary school children experience difficulties with basic numerical tasks, including number recognition, counting, addition, and subtraction. The researcher observed, "Most of the learners who have been analyzed can identify numerals from number slabs, but they cannot perform mathematical operations such as addition or subtraction, or articulate the values associated with the numbers". It was also noted that the learners' ability to communicate fluently is a significant issue. In other words, several

primary school learners were unable to read, write, sound out certain words, or even give the meanings of words. Still, many learners display high levels of creativity. For example, they could easily color shapes, create patterns, draw diagrams, and do crayon etching. This further suggests that the dynamics within schools are crucial to achieving syllabus coverage and enhancing the performance of primary school learners. That is, even with a good level of creativity and innovativeness, learners' performance in basic numeracy, language, and creativity skills remains poorly rated.

Teacher Training and Implementation of CBC in Public Primary Schools

To analyze the impact of teacher training on the implementation of CBC, data were collected on the frequency of teacher training sessions and the average results of learners in grade VI in the 2022 Kenya Primary School Education Assessment (KPSEA). The results, presented in Table 4, indicate a positive correlation between the number of training sessions and the learners' performance. Teachers who underwent more frequent training sessions showed improved student outcomes in the national assessments, highlighting the significant role of teacher training in enhancing CBC implementation and student achievement.

Table 3. Views of Teachers on the Influence of Teacher Training on CBC Implementation					
Test Items	Ratings				
	SA	A	U	D	SD
	%	%	%	%	%
Teachers have undergone training on teaching methods to be used in CBC implementation in primary schools	51.8	11.5	5.8	5.8	25.1
Teachers have acquired skills to help learners implement CBC in public primary schools	54.0	14.4	5.8	11.5	14.4
Different competencies have not been mastered by teachers, thereby leading to ineffective implementation of CBC in public primary schools	57.6	9.4	7.2	9.4	16.4
As a result of CBC training, new competencies about the utilization of instructional materials have been acquired by the teachers	48.2	8.6	5.8	20.9	16.4
To enhance learner competencies under the CBC framework, teachers have been trained on assessment methods for learners	66.5	11.3	3.3	5.4	13.5
Source: Field Data (2025)					

Based on Table 2, which presents descriptive data on the implementation of the Competency-Based Curriculum (CBC) in public elementary schools, several interesting patterns were found related to student learning outcomes. In basic numerical skills, most teachers (50.3%) reported that learners were below expectations, while nearly half (31.7%) exceeded expectations, and a small fraction (18.0%) came close. Similarly, for language skills, almost half of the teachers (48.9%) indicated that learners were below expectations, with a small

proportion (30.2%) exceeding expectations and a small proportion (20.9%) approaching them. Interestingly, in terms of creativity, almost half of the teachers (45.1%) reported that students exceeded expectations, followed by nearly half (25.6%) who were close to expectations, and almost half (29.3%) who fell below expectations. Finally, for essential environmental or life skills, almost half of the teachers (38.9%) stated that learners were still below expectations, while almost half (33.8%) exceeded expectations, and almost half (27.3%) came close. Departing from these interpretations, these data highlight that while there are potential areas, such as creativity, significant challenges remain in numerical and language mastery, indicating the need for further interventions to optimize CBC implementation.

Inferential Analysis

To analyze the effect of teacher training on the implementation of CBC in public primary schools, information was gathered regarding the frequency of CBC training sessions attended by teachers, as well as the average grade achieved by learners in grade VI in the 2022 Kenya Primary School Education Assessment (KPSEA). Results are presented in Table 4.

Table 4. Number of Times Teachers have been Trained and Implementation of CBC Public Primary Schools

Number of Times Teachers Have Undergone CBC Training	Average Learning Outcomes among Grade VI Learners in 2022 KPSEA (%)
1	40.30
10	39.20
12	53.90
13	37.90
11	35.50
7	58.70
8	30.10
3	23.04
5	50.91
12	44.88
4	36.87
17	68.93
10	42.95
13	54.89
12	49.01
8	45.89
6	32.98
6	42.99
7	34.93
7	58.10
16	54.80

Source: Field Data (2025)

As shown in Table 4, the frequency of CBC training a teacher undertakes

is related to how well their learners perform in national school assessments. That is, the teachers who have undergone training frequently tend to have their learners score reasonably high in the Kenya Primary School Education Assessments. The data represented in Table 4 were subjected to linear regression analysis, which is presented in Table 5.

Table 5. Relationship between Teacher Training and Implementation of Competency-based Curriculum in Public Primary Schools

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	32.075	5.094		6.296	.000
Number of Times Teachers Have undergone CBC training	1.400	.518	.527	2.705	.014

a. Dependent Variable: Implementation of CBC (KPSEA) in Public Primary Schools

Table 5 presents the results of a linear regression analysis, which can be graphically expressed as follows: The implementation of CBC (KPSEA Results) in public primary schools is equal to 32.075 plus 0.527 times the number of times teachers have been trained on CBC. Based on these results from linear regression, the value 0.527 corresponds to the result of multiplying the public primary school KPSEA results by the number of times teachers have been trained on CBC, as suggested by the synthesis of the regression model, which is 0.527. This indicates that every increase in the number of times teachers undergo CBC training is likely to improve the performance of learners in national assessments based on CBC rubrics by a coefficient of 0.527 (a positive coefficient).

Likewise, the value 32.075 shows that CBC implementation with teacher training as a base in schools is not influenced only by the factor of training, but by a combination of other external factors not within the scope of this study such as, the methodology employed by the teachers, the level of pupil's engagement, and socio-economic status of the involved population like in what is termed the famine of collapse of subsystems. Table 5 further shows that teacher training is strongly associated with the implementation of the combat curriculum, based on the results of executed national CBC assessments, which are significantly low, as indicated by the p-value of 0.014, which is less than 0.05 ($0.014 < 0.05$).

Thematic Analysis

The interviews revealed that headteachers, parents' representatives, and the Directors of Education mentioned that some induction related to CBC implementation thematic issues was provided to teachers. Headteacher, H2, stated;

At my school, I have advised teachers on participating in CBC and how to implement it. Much attention has been given to new teaching approaches that address students' learning problems. They have also been trained in the

development and utilization of learning materials. On their part, the parents' representative, PR2, noted, "At my school, teachers have undergone orientation for teaching students according to the CBC. I have witnessed changes in the way the activities of teaching, assessment, and the utilization of instructional materials are done".

These verbatims were supported by the Sub-county Directors of Education (TSC & MoE) and, on further probing, one SCDETSC1 noted, "In preparation to introduce CBC in schools, the first activity that the Ministry of Education undertook was retraining the existing teachers from pre-primary to grade III. The teachers underwent training on new learner-centered teaching methods. Training was also offered to the teachers on learner assessment, resourceful improvisation, and instructional resource utilization. Even if not fully developed, these perspectives emphasize the importance of teacher training as a primary facilitator for the successful integration of CBC in schools. This means that, foremost, teachers need to be adequately trained to properly implement self-instructed teaching strategies, outcome-based evaluations according to CBC standards, and elementary resource management, thereby fostering successful CBC implementation within schools.

Discussion

This section presents a comprehensive discussion of the research findings, systematically integrating quantitative and qualitative data to provide an in-depth and layered understanding of the phenomenon being studied.

This study comprehensively evaluates the level of implementation of the Competency-Based Curriculum (CBC) in Igembe Central Sub-district public elementary schools, integrating quantitative and qualitative data for a holistic understanding. The quantitative findings from Table 2 indicate that most teachers (50.3%) report that learners are still below expectations in basic numerical skills, and nearly half (48.9%) in language skills. However, there is potential in the area of creativity, where nearly half of teachers (45.1%) report that students exceed expectations. This data is reinforced by thematic analysis of interviews with principals and parent representatives, who consistently express concerns about incomplete syllabus coverage and suboptimal learning outcomes. For example, the Principal of H1 stated, "My teachers rarely complete the syllabus on time," which has implications for the acceleration of the material and a negative impact on learning outcomes. The PR1 Parent Representative added that their children "cannot perform basic numerical operations" and "communicative competence is still poor." The integration of these findings underlines that the implementation of CBC in the study area still faces significant challenges, especially in literacy and numeracy mastery, although creativity shows better achievements.

The study's findings, which integrate quantitative and qualitative data, demonstrate consistency with some previous literature but also offer a new

perspective. Quantitative data on low literacy and numeracy achievements, with 50.3% of students below numerical expectations and 48.9% in language, in line with research conducted by Islam et al. (2025), which indicates a still low level of CBC implementation, with only 19.4% of students having good literacy skills and 11.9% good numeracy. Furthermore, the results of the 2022 KPSEA, which showed that 66.7% of junior secondary students were still in the range of 20-50%, also confirmed the existence of a competency gap. However, thematic analysis provides an in-depth understanding of the root of this problem, namely the issue of syllabus coverage and teaching methods. Even though Sadeq et al. (2021) emphasize the importance of teacher training for curriculum understanding, our findings (Table 3) show that most teachers (57.6%) feel they have not fully mastered CBC competencies, indicating a discrepancy between training needs and implementation in the field. It expands the literature by highlighting that training alone is insufficient without ensuring adequate mastery of competency, as well as the challenges in applying relevant teaching methodologies, as mentioned by Atuhura & Nambi (2024), Issa et al. (2024), and Waruingi et al. (2022).

The findings of this study offer an in-depth examination of the theoretical framework of organizational readiness for change and the theory of curriculum implementation (Gabutti et al., 2023; Machado et al., 2021; Mathur et al., 2023). Organizational readiness theory emphasizes that individual acceptance and involvement are crucial to the success of change. In this context, although most teachers (51.8%) have attended CBC methodology training (Table 3), the qualitative findings indicate that teachers still struggle with suboptimal syllabus coverage and learning outcomes, and most (57.6%) feel that they have not fully mastered the CBC competencies. This suggests that teachers' readiness to implement curriculum changes has not been optimal, possibly due to inadequate training or a lack of ongoing support, which hinders full adoption. From the perspective of curriculum implementation theory, which emphasizes that the curriculum must equip students with relevant skills, the low achievement in numerical and language skills indicates that the implementation of CBC has not fully met this goal. Our combined data reinforce the proposition that without comprehensive teacher readiness, including mastery of methodologies and assessments, the effectiveness of curriculum implementation will be hampered, potentially expanding the understanding of this theory in the context of competency-based education.

As a conclusion to the discussion, this study explicitly confirms that the implementation of the Competency-Based Curriculum (CBC) in public elementary schools in Igembe Central Sub-district still faces substantial challenges, especially in mastering numerical and language skills. However, the potential for students' creativity is quite prominent. The primary scientific contribution of this study lies in its application of a mixed-methods approach, which yields a more comprehensive and nuanced understanding compared to

the use of a single method. Quantitative data provides a broad picture of "what" happens to learning outcomes, while qualitative data in-depth explains the "why" and "how" these challenges arise, such as issues of syllabus coverage and teacher readiness. This data synthesis not only reinforces the findings of the previous literature but also expands the scope of organizational readiness theory for curriculum change and implementation by demonstrating the complexity of new curriculum adoption in the field. In practical terms, the study encourages updates in teacher training policies and school support strategies, providing an empirical basis for more targeted interventions to improve the quality of competency-based education.

CONCLUSION

This research primarily focuses on a comprehensive evaluation of the implementation of the Competency-Based Curriculum (CBC) in public primary schools in Igembe Central Sub-district, an issue that is complex and multidimensional, requiring an understanding that extends beyond single data points. Statistical data indicate significant challenges in numerical and language skills, with most learners still falling below expectations; however, this is offset by the potential for outstanding creativity. The narrative from the principal and parents coherently reinforces this picture, highlighting the issue of incomplete syllabus coverage and suboptimal teacher readiness. This integration significantly enriched the theory of organizational readiness for curriculum change and implementation, suggesting that the successful adoption of a new curriculum relies heavily on teachers' comprehensive readiness and ongoing support. In practical terms, the study provides an empirical foundation for policymakers and practitioners to design more effective teacher training programs and more targeted school support strategies, ensuring holistic and relevant interventions. The advantage of this blended approach lies in its ability to present a complete picture of phenomena, transcend the limitations of a single method, and pave the way for further research that can explore contextual factors in greater depth.

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