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From Official Discourse to Actual Practice : An Analysis of the Realities of Mathematics Instruction in the Fourth Year of Middle School in Two Schools in Avrankou (Benin)

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ABSTRACT

Background: Teaching practices determine the quality of learning, particularly in mathematics, one of the core subjects in the school curriculum. In Benin, discrepancies may arise between institutional guidelines, research-recommended methods, and teachers' actual practices. This is a concern in the eighth-grade classes at the Malé and Atchoukpa CEGs in the municipality of Avrankou, where academic performance is low. **Objective:** The objective of this study is to analyze the discrepancies between pedagogical guidelines and the realities of actual mathematics teaching practices in these two middle schools. **Méthods:** This is a mixed-methods study conducted from May to June 2026, based on questionnaires (95 students and 13 mathematics teachers), semi-structured interviews (two instructional supervisors), and classroom observations (six class sessions). **Results:** Teachers report that they present the course objectives (81%), review prerequisites (90%), and explain concepts step by step (100%). However, there are limitations to these reports: 61.9% never use group work, and homework is assigned infrequently. Teachers cite structural constraints: large class sizes (100%), a lack of teaching materials (71%), low academic standards (90%), a lack of student motivation (76.18%), and a lack of time (43%). Classroom observations and interviews with supervisors corroborate these findings. **Conclusion:** The impact of reported teaching practices depends on the actual conditions under which they are implemented. Future research would provide a better understanding of the relationship between actual teaching practices and these students' performance in mathematics.

KEYWORDS: *teaching practices, prerequisites, instructional supervision, group work, Benin.*

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INTRODUCTION

Teaching is a complex professional activity [1] that, in addition to imparting knowledge, involves making instructional choices, employing pedagogical strategies, and constantly adapting to learning situations [2]. To this end, teaching practices play a significant role in the construction of knowledge and the development of learners' skills. Analyzing teaching practices is therefore a valuable approach to understanding the conditions under which students learn [3] and the challenges they face. This issue is particularly important in mathematics education. As a fundamental subject in the academic curriculum, mathematical proficiency requires mastery of operations [4] and formulas, an understanding of concepts, the application of relevant reasoning, and the ability to explain the approaches used [5].

Implementing such learning requires teaching practices tailored to the objectives being pursued and

the needs of the learners. To better support the acquisition of these skills, teachers must identify errors and revisit content that has not been sufficiently mastered, while ensuring that expectations related to academic tasks are met [6]. The effectiveness of teaching depends not only on subject matter but also on how it is organized, explained, practiced, and assessed [7].

However, in Africa, discrepancies may arise between institutional guidelines, the methods recommended by scientific research, and teachers' daily practices [8]. Constraints related to working conditions, available teaching resources, classroom management, or variations in student ability can significantly influence teaching methods [9]. A study of actual teaching practices is necessary to better understand the realities of teaching this subject.

This concern is particularly acute in the eighth-grade classes at the Malé and Atchoukpa General Education Middle Schools (CEG), located in the municipality of Avrankou, in the Republic of Benin. The poor results obtained in these classes raise questions about the conditions under which mathematics instruction is designed and implemented. This raises the issue of the alignment between the official statements of school administrators, teaching conditions, and actual classroom practices. Since mathematical concepts can be applied to social, economic, and cultural activities, linking them to related real-world situations can help make classroom learning more flexible [10]. It is therefore important to examine the emphasis placed on problem-based situations, contextualized examples, student discussions, and the application of knowledge to new situations. This study aims to analyze the gaps between pedagogical guidelines and the realities of actual mathematics instruction in two middle schools in Avrankou.

1. METHODOLOGICAL APPROACH

This is a mixed-methods study combining quantitative and qualitative methods, conducted at the CEG Malé and CEG Atchoukpa in the municipality of Avrankou. The target population consists of students, teachers, and instructional supervisors. The sample comprises 95 eighth-grade students selected using simple random sampling. The sample size of students was distributed proportionally between the two schools, taking into account the number of 8th-grade students at CEG Malé and CEG Atchoukpa: 53 enrolled at CEG Malé and 42 at CEG Atchoukpa. As for the teachers, the two schools have a total of twenty-one math teachers. The study included the thirteen math teachers directly involved in teaching 8th-grade classes at both schools. The reasoned selection technique was used to select the math teachers from both middle schools.

Two educational supervisors were selected for this study: an educational advisor and an instructional coordinator. They are staff members at the schools in question and also teach in the classroom. Their inclusion in the study population is justified by their dual perspective: that of educational supervisors and that of teachers facing the realities of the classroom. Their perspectives will enrich the analysis of teaching practices, students' difficulties, and the conditions necessary for improving learning in mathematics.

The mathematics lessons observed were also selected based on a reasoned choice. This observation supplemented the self-reported data from the questionnaires and interviews with information gathered directly in the classroom setting. It thus made it possible to assess the teaching practices actually implemented during mathematics lessons.

Several techniques were used to collect the data. The questionnaire survey was administered to 8th-grade students and mathematics teachers at both middle schools. It gathered their perceptions regarding the teaching practices implemented, the mathematics curriculum, the difficulties encountered, and classroom participation. The questionnaire administered to teachers focused on reported teaching practices, the methods used, the difficulties observed among students, and support strategies.

Semi-structured interviews were used to gather information from an educational advisor and an educational coordinator. These interviews provided additional insights into teaching practices, learning difficulties in mathematics, educational support, and areas for improvement. Since this was a mixed-methods study, data were collected using the interview guide and recorded using the voice recorder app on a REDMI 14C smartphone.

The direct observation included six math classes: three at CEG Malé and three at CEG Atchoukpa. It was conducted using an observation rubric that assessed the clarity of explanations, student participation, exercises, error correction, feedback, and classroom management. Data collection lasted 30 days, from May 3 to June 2, 2026. Semi-structured interviews were conducted with the defined participants until saturation was reached.

After data collection, the quantitative data from the questionnaires were collated, coded, entered, and analyzed using Microsoft Excel. The analysis focused primarily on descriptive statistics, including frequencies, percentages, averages, and graphical

representations to highlight observed trends. The qualitative data from the interviews, observations, and open-ended questions were transcribed in full and analyzed thematically by grouping the information gathered. This method involved identifying, grouping, and interpreting recurring ideas, as well as points of agreement and disagreement expressed by the various participants interviewed.

2. RESULTATS

➢ PRACTICES REPORTED BY TEACHERS

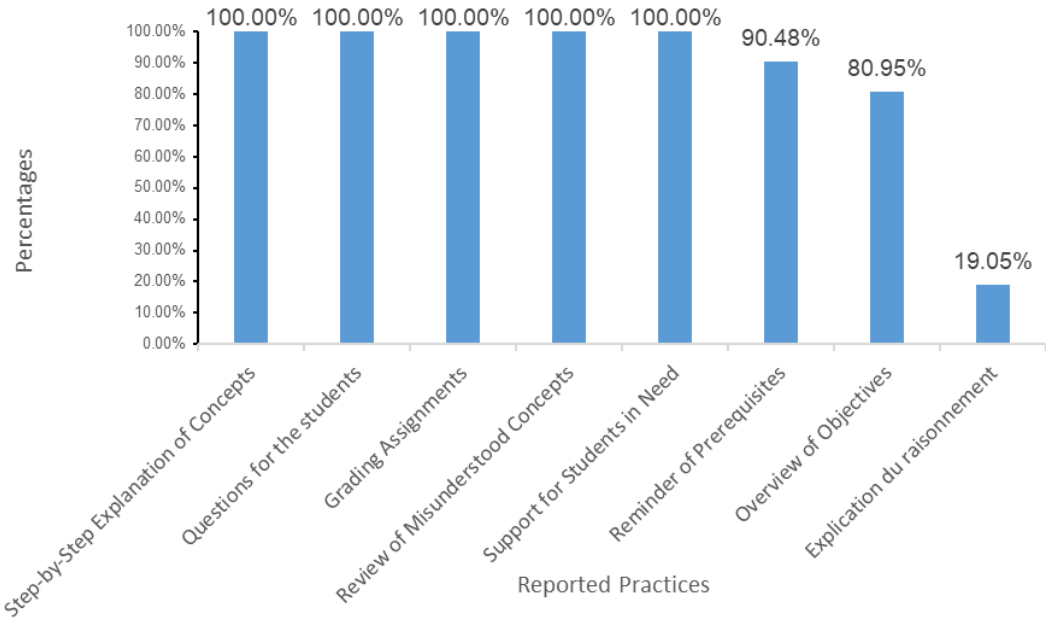


Figure 1: Positive practices reported by teachers
Source: field data, may 2026

This figure shows that teachers report placing a high priority on lesson preparation and the step-by-step delivery of lessons. In fact, 81% of teachers stated that they always present the lesson objectives to students. Reviewing prerequisites also appears to be a widely practiced approach. Ninety percent of the sample of teachers reported that they always review prerequisites before introducing a new concept. All teachers for a total of 100% reported explaining concepts step-by-step. Regarding student participation, all teachers surveyed reported asking students questions during class sessions.

➢ THE LIMITATIONS OF SELF-REPORTED PRACTICES

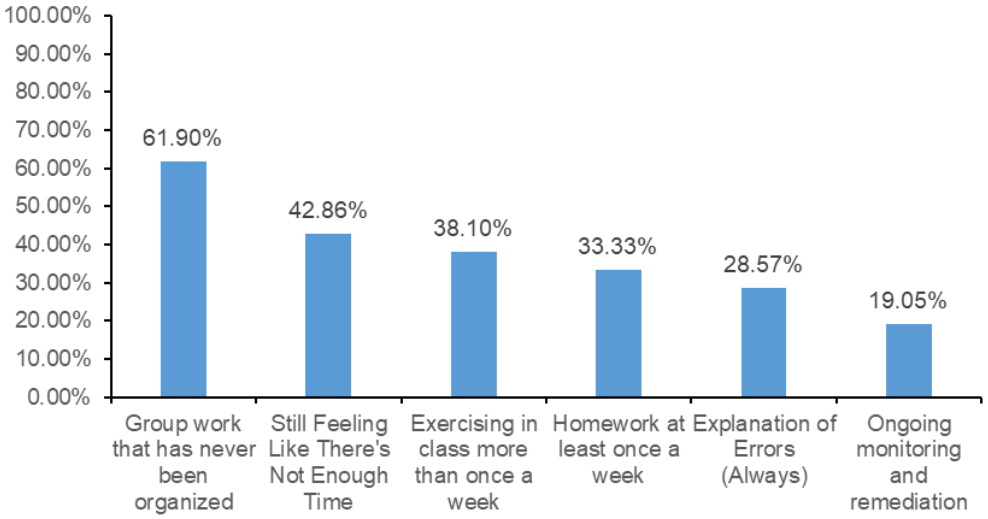


Figure 2: Limitations identified in reported teaching practices
Source*:* Field data, may 2026

Among the reported teaching practices, this graph reveals certain limitations. Group work appears to be a practice that is rarely used. Of all the teachers surveyed, 61.9% reported never organizing group work. This result highlights a significant limitation in the reported practices. Exercises are a regular feature of mathematics

instruction. Homework is assigned, but with varying frequency. This graph also shows that 33% of the teachers surveyed reported assigning homework at least once a week. These results indicate that homework is provided to students, but with low and inconsistent frequency.

The comments of a supervisor shed light on this trend by drawing attention to certain professional shortcomings observed among some teachers. One of them states:

> A lack of proper preparation; a lack of professionalism; a lack of adequate mastery of the concepts being taught among some teachers; professional negligence; and poor classroom management are all challenges faced by teachers. ENC 01, May 2026

This verbatim supports the quantitative findings regarding the limitations of teaching practices. While it does not allow us to generalize these difficulties to all teachers, it provides qualitative insight into lesson preparation, mastery of concepts, and classroom management which correspond to the indicators of the "teaching practices" dimension of the model.

The graph on the limitations of teaching practices also shows that 42.86% of teachers report consistently facing a lack of time. This data serves as an indicator for the "teaching practices" dimension and helps clarify the following statement. A supervisor notes:

> Poor time management can lead a teacher to skip steps during instruction; but there are some very good teachers among them. ENC 01, May 2026

This verbatim comment sheds light on the quantitative data regarding the lack of time. It concretely illustrates how this constraint can lead some teachers to rush through or skip steps in the lesson. The comment remains nuanced, however, as the supervisor also acknowledges the existence of very good teachers.

MAIN EXPLANATORY FACTORS, ACCORDING TO TEACHERS

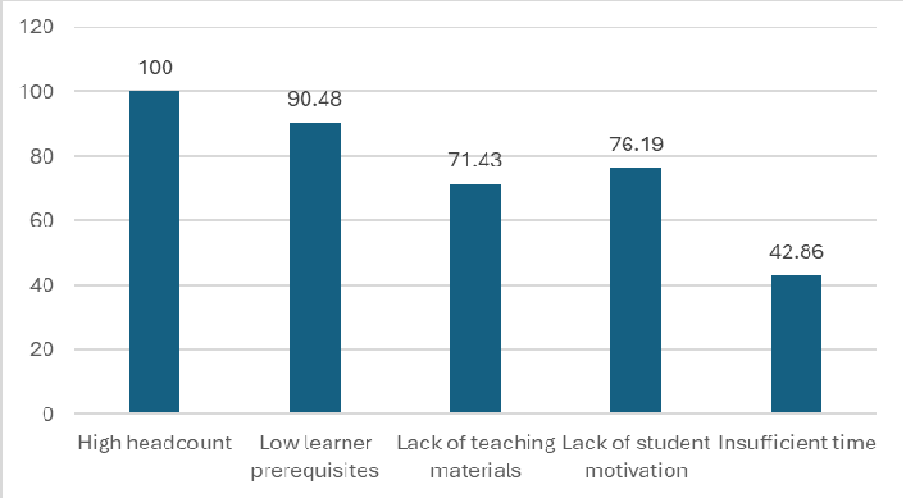


Figure 3: Main explanatory factors according to teachers
Source: Field data, May 2026

Teachers also report encountering several challenges in carrying out their teaching practices. The lack of teaching materials is another significant challenge. More than half of the respondents for a total of 71% report that they consistently face this issue. These results reflect the conditions under which teaching practices and learning situations are implemented. The interviews provide further insight into this. The school coordinator states:

"The lack of monitoring of student learning, the inexperience of some young teachers, and oversized class sizes prevent effective monitoring; teaching conditions are not conducive to learning." ENC 02, May 2026

This verbatim supports the quantitative trends regarding class sizes and teaching conditions. It provides qualitative insight into the monitoring of student learning and teachers' professional experience. These elements help explain how classroom conditions can limit the effective implementation of pedagogical practices.

Teachers also strongly emphasize learners' low prior knowledge; 90% strongly agree that low prior knowledge constitutes a major challenge. Insufficient time also appears to be a constraint in mathematics instruction. Of the entire sample of teachers, 43% reported facing this challenge all the time. Finally, 76.19% of teachers cited students' lack of motivation

as a significant difficulty, because they face it all the time.

Teaching conditions are another important contributing factor. All teachers surveyed stated that large class sizes pose a challenge. This finding aligns with classroom observations. Some of the classes observed had more than fifty students. Under these conditions, it becomes difficult for the teacher to monitor each student, check their notebooks, listen to various lines of reasoning, and provide individualized support to the weakest students.

Classroom observations also show that the schedule and classroom atmosphere can influence learning. Some sessions observed in the afternoon revealed greater fatigue, distractions, and disengagement. This shows that the actual conditions under which the class takes place can affect students' availability and their ability to follow the explanations.

Quantitative data show that 100% of teachers report that large class sizes pose a challenge and that 71% report consistently facing a lack of teaching materials.

3. DISCUSSION

➢ BETWEEN EFFECTIVE TEACHING PRACTICES AND THE REQUIREMENTS FOR LEARNING-CENTERED INSTRUCTION IN MATHEMATICS

The results of this study revealed that mathematics teachers at the CEGs in Malé and Atchoukpa report placing significant emphasis on preparation and the gradual progression of learning. From the teachers' statements, it is evident that they strive to structure lessons around essential pedagogical guidelines: stating objectives, reviewing prerequisites, gradually explaining concepts, and stimulating students' engagement through questions. These practices are based on a structured progression and on opportunities to assess students' understanding of the concepts being taught. Indeed, in mathematics, concepts are often interconnected, so that an unresolved difficulty from a previous lesson can act as a barrier to understanding new content [11].

However, since simply reviewing prerequisites does not guarantee that students have mastered the concepts, it is important to identify likely misconceptions and adapt the next lesson based on the responses received. Research has emphasized the importance of making students' reasoning visible and treating errors as useful information for adjusting instruction [12]. With reference to Joulia's [13] insights, the quality of instruction does not depend solely on the content covered in class. It also depends on how that content is made accessible to students [7]. It is therefore important to distinguish between the recognition of a teaching practice, its actual implementation, and the effects it has on student learning.

Some studies have examined the relationships between the support provided by mathematics teachers, student engagement, and student experiences [14]. In the context of the CEGs in Malé and Atchoukpa, the reported practices should be considered as potential pedagogical resources whose impact depends on the actual conditions under which they are implemented.

➢ THE LIMITED USE OF GROUP WORK AND THE CHALLENGES OF MONITORING STUDENT LEARNING

Beyond the reported positive practices, the results indicated certain limitations in the organization of learning activities at the CEGs in Malé and Atchoukpa. Group work appears to be the least frequently used practice among those examined. More than half of the teachers reported never organizing group work. However, group work can offer learning opportunities that differ from those typically associated with classroom lessons and individual quizzes [15]. When properly prepared and supervised, group work can give students the opportunity to compare their reasoning, explain their approaches, and benefit from the presence of their peers. However, these benefits are not automatic [15]. They depend on the relevance of the proposed activities, the distribution of roles, and the quality of pedagogical support [16, 17].

The work conducted by Chenet and Gibel [18] sheds light on this issue by highlighting the importance of instructional situations in the construction of mathematical knowledge. While students receive knowledge presented by the teacher, they are also called upon to engage with a situation, develop procedures, and apply them to the constraints of the problem at hand. Furthermore, classroom exercises and homework assignments can also contribute to the consolidation of learning [19].

The key is not to limit oneself to mechanical repetition. However, the results of this study reveal that less than half of the teachers surveyed reported assigning in-class exercises and homework, on average once a week. Given this fact, the frequency of activities alone is not sufficient to assess their educational value. An exercise becomes educational when the student has sufficient time to understand the procedure, compare their work to the answer key, and identify likely errors so as not to repeat them. Educational feedback is most useful when it is linked to learning objectives [20] and helps the student identify areas for improvement [21]. Furthermore, it

is important to bear in mind that not all students learn in the same way or at the same pace [22], and that teaching practices must therefore be adjusted and instruction adapted to learners' difficulties, hence the need for remediation.

- **TEACHING CONDITIONS AND STUDENT DIFFICULTIES: OBSTACLES TO EFFECTIVE PRACTICES**

The results showed that teaching practices take place within an environment characterized by several material, pedagogical, and organizational constraints. All teachers interviewed considered large class sizes to be a challenge in carrying out their duties in the classroom. Furthermore, the majority reported facing a lack of teaching materials and a lack of student motivation, while also highlighting the students' low prior knowledge, particularly among the 8th-grade students selected for the survey. These findings illustrate the challenges encountered in teaching mathematics. Although these challenges are attributed to teaching approaches, they are linked to classroom conditions and the resources available to students and teachers.

Observations made in both classes revealed that class sizes sometimes exceeded fifty students. Faced with such a situation, the teacher must divide their attention among a large number of students, managing the class, checking assignments, and responding to individual requests. When some students have not mastered certain concepts necessary for the lesson, the teacher must choose between continuing with the planned curriculum and spending time reviewing previously learned material.

These conditions may help explain why certain practices even those recognized as useful are not always implemented under the necessary conditions [23]. Referring to interviews conducted with instructional supervisors, one of them emphasized that oversized class sizes limit the ability to monitor student learning, creating unfavorable teaching conditions.

Research has shown that the materials and situations presented to students play an important role in mathematics learning [24, 25]. Other authors have supported this view by demonstrating that diversifying teaching practices requires appropriate instructional resources [2, 26, 27]. Following this line of reasoning, certain mathematical concepts can therefore be better understood when the teacher has access to teaching aids, diagrams, geometric instruments, textbooks, or materials that help illustrate these concepts.

The difficulties related to weak foundational knowledge observed among eighth-grade students do not necessarily begin at this level. A study conducted in Morocco revealed that these difficulties may be linked to gaps in learning accumulated in previous grades [28]. Similarly, other studies have shown that differences in students' proficiency levels must be taken into account to promote their progress [2, 23]. Similarly, classroom observations in 8th-grade classes 1 and 8th-grade classes 4 revealed comprehension difficulties among several students.

These findings are consistent with the work of Bressoux [29], which shows that teacher practices can influence academic achievement, even though this effect depends on the classroom context. Clarity in instruction and feedback are also factors that promote learning [30]. Teachers' statements regarding the presentation of objectives, the review of prerequisites, and the step-by-step explanation of concepts are therefore examples of effective teaching practices.

CONCLUSION

This study analyzed the gap between official pedagogical guidelines and actual mathematics teaching practices in eighth-grade classes at two middle schools in the municipality of Avrankou (Benin). These are the Malé and Atchoukpa CEGs. The survey revealed that the teachers interviewed stated that they adhered to teaching principles; however, these practices recognized as beneficial offer no guarantee of their impact on student learning. The limited use of group work and the infrequent use of exercises reduce their effectiveness. These limitations are not solely the result of individual teachers' choices: These practices take place in an environment constrained by overcrowded classrooms, insufficient teaching materials, accumulated gaps in learning from previous grades, and limited instructional time. To this end, it seems important to distinguish between the practice itself, its implementation, and its effects on students. Future research, based on more extensive observations and on measuring students' knowledge levels, would help assess the link between actual practices and performance in mathematics.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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REFERENCES

[1] Bisaillon J, Villeneuve S, Stockless A. Characteristics of professional development activities for faculty that combine creativity and the pedagogical use of digital technology. Didactique. 2026; 7(3):92-116.

[2] Soltani EM. Differentiated instruction and digital strategies: toward a transformation of teaching practices in a university setting. Langage fonctionnel. 2025; 12(2):94-114.

[3] Sawadogo WJÉ. Continuing professional development for "industrial technology" teachers in Burkina Faso: analysis of teaching practices as a tool for quality improvement. LAKISA, Journal of Educational Sciences. 2026; 6(11): 417–432.

[4] Nolin R, Monney N. Peer feedback and assessment of the competency "Solving a Mathematical Problem": analysis of an approach implemented in elementary school. Revue Hybride De L'Éducation [Internet]. Oct 6, 2026; 10(4):1–40. https://revues.uqac.ca/index.php/rhe/article/view/2064

[5] Tremblay M, Delobbe AM. Co-construction of an assessment rubric for mathematical reasoning in team problem-solving. Revue québécoise de didactique des mathématiques. 2026; 7(1):31-61.

[6] Chesnais A, Coulange L, Joigneaux C, Netter J. What teachers' handling of students' "errors" reveals about their practices. Annals of Didactics and Cognitive Sciences. International Journal of Mathematics Education. 2025; (3):13–24.

[7] Dominé S, Paré M, De Vita L. What students say about their needs in the classroom: discrepancies between students and teachers. La Nouvelle Revue – Inclusive Education and Society. 2026; 105(1):71-90.

[8] Focksia Docksou N, Garba AK, Zalle R. The professionalization of teachers in sub-saharan africa: between competency frameworks, field practices, and curricular requirements. African Scientific Journal. 2026; 3(34):192.

[9] Blat M, Boilevin JM, Marzin-Janvier P. Organization of learning guidance activities in inquiry-based science teaching and learning contexts. Education & Didactics. 2024; 18(2):117-146.

[10] Bouftouh O, Delbouh A. Analysis of teachers' knowledge to support students in solving mathematical problems. The Journal of Quality in Education. 2026; 16(27):243-266.

[11] Reuter Y. Conceptions and practices of error across pedagogical approaches. Cahiers pédagogiques. 2025; 602(7):18-20.

[12] Joulia D. In search of quality in foreign language teaching and learning. Les Cahiers de l'APLIUT. Pedagogy and Research. 2003; 22(1):23-39.

[13] Baba-Moussa AR, Hounkpodoté H, Diallo LL, Kaba GR. An analysis of mathematics results from French-speaking countries in sub-Saharan Africa in the 2019 PASEC assessment. Revue internationale d'éducation de Sèvres. 2023; (93):111-119.

[14] Buchs, C. "Learning Together: Approaches to structuring classroom interactions." in: social interactions in the classroom: Reflections and Perspectives. 2017. pp. 189–208.

[15] Butlen, D., Charles-Pézard, M., & Masselot, P. "Learning and inequalities in elementary school: the case of mathematics instruction in priority education zones." [Place of publication unknown]: CNESCO; 2015. Available at: http://www.cnesco.fr/wp-content/uploads/2015/11/Enseignement-en-%C3%A9ducation-prioritaire.pdf

[16] Deshaies I, Lemire C. Online and in-person professional development in early math education: what conditions are needed to transform practices in preschool education? Quebec Journal of Mathematics Education. 2025; 6(2):66-98.

[17] Chenet A, Gibel P. Analysis of a distribution activity in preschool using the theory of didactic situations. Journal of Mathematics for Schools. 2026; (245):19-37.

[18] Farsia KN. Analysis of math and french exercise practices in 6th-grade classrooms to promote student success at félix éboué and gassi middle schools in N'Djamena. LAKISA, Journal of Educational Sciences. 2024; 4(7):111-120.

[19] Eid C. Universal Design for Learning: A "Dynamic Bridge" between differentiated instruction and humanistic assessment?

Contexts and Didactics. A Semiannual Journal of Educational Sciences. 2019; (13).

[20] Durler H. Student autonomy and instructional materials. Research in Education. 2016; (25).

[21] Mével, Y. "Making the classroom more flexible," in Andreea Capitanescu Benetti and Sylvie Grau (eds.), ESF Sciences humaines, 2025. Cahiers pédagogiques. 2025; 602(7):12-13.

[22] Ourahay, M. "mathematics competency levels: a tool for differentiation and learning progression." E-JIREF. 2025; 11(2):107-135.

[23] Chesnais A, Coulange L. The role of verbal language in learning and teaching mathematics: a synthesis and perspectives in mathematics education. Revue française de pédagogie. Recherches en éducation. 2022; (214):85-121.

[24] Rajotte T, Dufour R, St-Jean C. effects of the prest-math approach on fifth-grade students' performance in solving applied math problems and on their academic motivation. Quebec Journal of Mathematics Education. 2026; 7(1):62-102.

[25] Chahbi A. pedagogical hybridization and inclusion: opportunities and challenges for equitable education. The Journal of Quality in Education. 2026; 16(28):124-144.

[26] Oké E, Sossa B. Teachers' resistance to the competency-based approach in teaching mathematics in the 10th grade science track in Benin; 2019.

[27] Ibourk A, El Aynaoui K, Ghazi T. TaRL Morocco: promising beginnings for innovative academic support. Policy Center for the New South; 2023.

[28] Bressoux, P. "Reflections on the teacher effect and the study of teaching practices." Les dossiers des sciences de l'éducation. 2001; (5):35–52.

[29] Hattie, J. Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. London: Routledge; 2009.

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