

HELP THEM UNDERSTAND:

The importance of instructional clarity in teaching and learning

An important quality of an effective educator is the ability to explain subject content clearly and to determine learners' understanding of the topic. Clear instruction enables learners to more effectively plan, set goals and acquire a stronger sense of how to judge their own progress. *Fabian Arends* uses grade 5 and grade 9 learner data from the Trends in International Mathematics and Science Study (TIMSS) to investigate instructional clarity from a learners' perspective and its impact on learning outcomes.

Classroom instruction and engagement are at the core of learning, and day-to-day classroom educational activities are likely to have a direct impact on mathematics learning. An important aspect of instructional clarity is the identification of clear teaching behaviour. The educator needs to employ instructional techniques and explanations to ensure learners' comprehension of challenging topics.

The TIMSS 2019 study provided us with the opportunity to examine the association between instructional clarity and academic achievement at the grade 5 and grade 9 levels.

The extent to which the learners in these grades agreed with statements linked to aspects of instructional clarity is indicated in Table 1.

Photo: Katerina Holmes, Pexels

Table 1: Grade 5 and 9 mathematics learners agreeing 'a lot' with the instructional clarity statements

	Grade 5	Grade 9
My teacher is good at explaining mathematics	77%	63%
I know what my teacher expects me to do	74%	60%
My teacher explains a topic again when we don't understand	73%	71%
My teacher does a variety of things to help us learn	70%	59%
My teacher has clear answers to my questions	68%	52%
My teacher is easy to understand	64%	49%
My teacher links new lessons to what I already know	Not asked	46%
Instructional Clarity Index	70%	52%

Good Morning
Minute # 7

③ Is $\sqrt{10}$ closer to 3 or 4?

④ $(\sqrt{4}^2)$

⑤ Which of these operations completed first?

⑥ If 6 out of 30 people over the age of 100 are male, how many are female?

We found that grade 5 learners were more positive than grade 9 learners about the instructional practices their mathematics educators employed. At the grade 5 level, 77% of learners agreed ‘a lot’ that their educators were ‘good at explaining mathematics’. Seventy-four per cent agreed ‘a lot’ that they understood what their educators expected of them, 73% that the educators repeated topic explanations, and 70% that the educators employed various techniques to help them learn.

At the grade 9 level, most learners agreed ‘a lot’ that their educator repeated topic explanations when they did not understand (71%), that their educator was good at explaining mathematics (63%), and that they knew what their educator expected them to do (60%). However, less than half of them agreed that their educator was easy to understand and linked new lessons to what they already knew (46%). This is worrying because new learning is constructed from prior knowledge: The more educators understand about what learners already think and the more they assist them in drawing on their prior understanding, the more likely learners are to learn well, and the less likely they are to misinterpret the subject content.

Figures 1 and 2 present the results of the Instructional Clarity in Mathematics Lessons Index for grades 5 and 9, using a composite index calculated from the seven statements linked to aspects of instructional quality in Table 1. On average, 70% of grade 5 learners reported high clarity of instruction, compared with 52% of grade 9 learners.

Figure 1: Grade 5 Mathematics Instructional Clarity Index

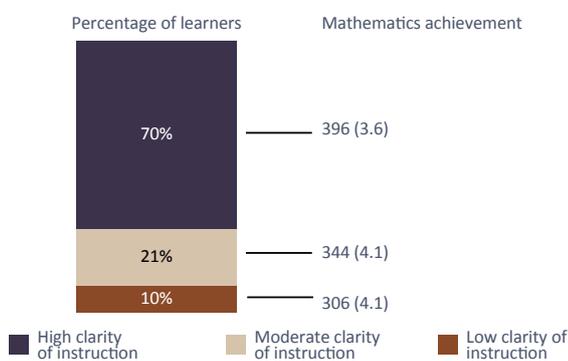
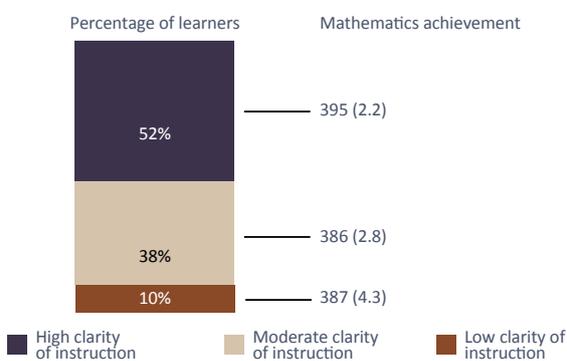


Figure 2: Grade 9 Mathematics Instructional Clarity Index



The TIMSS scale

The TIMSS achievement scale for science and mathematics has a centre point of 500. Learners who achieve a score below 400 do not have the proficiency for the grade assessed. A score between 400 and 475 indicates some knowledge of the subject, a score between 475 and 550 the ability to apply subject knowledge, and a score above 550 the ability to apply knowledge and to reason.

Grade 5 learners who reported higher clarity of instruction achieved significantly higher mathematics scores than those who reported moderate and low clarity of instruction. The achievement difference between learners who reported high clarity of instruction and those who reported low clarity of instruction was almost one standard deviation. We found a similar link at the grade 9 level, where learners who reported high clarity of instruction achieved significantly higher mathematics scores than those who reported moderate clarity.

The education ministry might well consider this finding useful when reviewing policy on educator training.

How do educators improve instructional clarity?

Our findings illustrate that clear instruction assists learners to understand the relationships between topics and concepts, and to connect what they are being taught with prior knowledge. The results of our findings suggest that the way educators interact with learners has a significant bearing on their performance. This is reflected in the significant achievement differences between grade 5 learners who reported high clarity of instruction and those who reported medium and low clarity of instruction. At the grade 9 level, where learners were more discerning regarding their educators’ instructional practices, nearly half the learners reported moderate to low instructional clarity.

Educators should pay particular attention to grade 5 and 9 learners and adapt their instructional practices according to learners’ needs.

The instructional clarity items in Table 1 are examples of methods of instruction that are effective at maintaining learner engagement and activate them cognitively. Learners require their educators to be clear about what they want them to know and be able to do. The teachers should explain the subject content plainly and use a variety of techniques to help them grasp the subject content.

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