Common day use of some terminology; assessment, measurement and evaluation; in Cameroonian Classrooms

Norbert Wirsiy Nyuyki (PhD) Department of Curriculum and Evaluation, Faculty of Education, University of Yaounde I (norbynwirsiy@gmail.com)

Isabela Nchou Kum, PhD student, Department of Teacher Education, Faculty of Education, The University of Bamenda (Isakum2000@yahoo.fr)

Abstract

Assessment is one key ways through which educational stakeholders gauge students' performance and achievement as well as learning outcomes. In spite of the predominance of assessment over the years, the area as a scientific field of study is not very old in Cameroon. This is exemplified in the newness of departments of assessment in our universities. Although there are strides in this area of assessment, there is the tendency for young teachers and other stakeholders to get confused with basic terminology, which often than not may come to them interchangeably, implying synonymous and cause confusion. It is important that for teachers to share and leverage best practices in the area of assessment, that they should be able to talk common language without ambiguity in order to improve accuracy in quantification of national progress in learning objectives or educational outcomes. The paper therefore illustrated using day to day usage of the terms; assessment, measurement and evaluation, to illustrate how intermittent these terms are, in spite of their unique characteristics. Although the terms assessment and evaluation are commonly used, the term measurement, as technical as it is, is practiced every day in school settings and therefore it was important to illustrate its meaning and use, in order to increase educational vocabulary and improve understanding of assessment practices by various educational stakeholders. Conclusively, the main difference in the terms lies in the purpose, but more so, the paper illustrates that assessment, measurement and evaluation are algorithmic in nature and therefore entail ingenuity on the part of teachers and other stakeholders in discharging their duties, to guage learning and carry out informed decisions which are evidence based.

Key terms; assessment, measurement, evaluation

Teachers are the front line actors in curriculum implementation (Aqil et al, 2024). Curriculum here encompasses knowledge, skills, attitudes and competences that are meant to be imbued or developed in learners, as well as the ways and means through which this is done (Hager & Anathasou, 1994). In modern times, the word teacher has evolved to take different meanings, and the classroom is no longer a site only, but has even become interfaces beyond the physical classroom. In this sense, we refer to a teacher as someone who intentionally facilitates learning (Leke, 2003; 2006; Tchombe, 2004, 2019, Zama & Endeley, 2020).

The teacher's ultimate objective is to induce learning in their students (Bloom, 1971). Learning here refers to a relatively permanent change in behaviour that occurs as a result of experience or practice (Kimble, 1961; Tchombe, 2004; Nsamenang, 2006). Going by this definition, we could define the curriculum therefore as the entirety of experiences required to cause learning in the learners. This is a widely accepted definition, which however needs a lot of ingenuity on the part of teachers and curriculum workers: how will we know that there is a change in behaviour, to attest that learning took place (Aqil et al, 2024). Furthermore, what do we have to do to 'cause' learning? It is certain that if one were to determine the change, then there would be a need to *measure* the entry behaviour of learners into their classroom before they begin to learn (Cao, 2020; Weinstein, 1986).

Following, at the end of the learning, there would be need to measure the amount of learning that has taken place by determining the current characteristics of the learners (Eichmann, 2020a; Eichmann, 2020b; Driscoll, 1994). Therefore the difference between the entry characteristics and the current status quo would reflect incremental learning (what Lev Vygotsky referred to as the Zone of Proximal Development; ZPD). We agree that some to the changes would be due to *maturation and development* and not learning (Green, 2009; Shuell, 1986, Vygotsky, 1978). These coupled terms are out of the scope of this paper and we won't attempt a definition.

The difference between the learners' entry characteristics and their current characteristics is what we would want to measure. Lev Vygotsky's Zone of Proximal Development is analogous to magnitude of this *measurement;* a measure of the improvement in learner's characteristics due to learning that has taken place (Newman, 2007). The teacher being the scaffold, while the teaching process being scaffolding. Put in other words, the teacher will have to evaluate the students learning with respect to the curriculum objectives (Nyenti, 2006; Sadler, 1989). This is an ardent responsibility to be accountable (Juškaite, 2019).

This responsibility entails in part that the teacher has to *test* the students in order to evaluate them (Sadler, 1989). Ordinarily, in secondary schools we hear of sequence or test, to imply the exam or test which the learners have to take every month or there about. At the time they are being tested or taking an exam, the teacher had started the process of assessment. The process of assessment allows teachers to determine the parameters that will be measured to attest that learning took place (Ivanova, 2020).

To attest that learning took place, learners have to demonstrate certain capabilities or competences which they did not possess prior to learning (Ilgun, 2021). Let us not argue on the fact that if you teach learners what they already knew, they are not learning, but they are

revising; meaning they are revisiting the experience. The decisions that you as a teacher takes at the beginning of the term, with respect to how you will know that students have learnt, is what we refer to as *assessment* (Sheperd, 2000). During the teaching and at the end of the teaching, all the decisions that you take on how you will provide evidence that students have learned, is what we refer to as assessment (the decisions on evidence about learning, which you take during the term or during teaching are referred to as *formative assessment*, whereas those that you take at the end of the term or at the end of the learning are referred to as *summative assessment)* (Nyenti, 2006; Nitko, 2001)

Let us illustrate what assessment is. A Biology teacher may decide to assess her students based on the following; how neat the students copy their notes, how regular they attend classes, how active they are in class, and their performance on the biology sequence. Then, these are parameters she will consider (Schuwirth & Vleuten, 2006) . This process for identifying the parameters to be measured is referred to as assessment. This teacher may decide that if you attend all classes, you earn a double mark. She may also decide that if a student draws beautiful and well annotated diagrams, the student will earn two other marks and so on.

At the end of this assessment process, the teacher will have to measure the students' performances. *Measuring* means that the teacher will have to quantify the students' performances based on the parameters to be evaluated. For example, if a student scores all the points for each parameter, she will finally obtain a maximum score of 100% if we chose to use the percentage scale (Schuwirth & Vleuten, 2004). This teacher may have also decided that the class test or exam will be on 20 marks, and that all those parameters will contribute to 10 marks. In this light, the students' total score in Biology will be on 30marks. This is the students' cumulative mark. The student's total and final mark is referred to as summative assessment score.

Notice that the process of gathering information about learning during the teaching is *continuous (in Cameroon classrooms you would often hear about Continuous Assessments (CAs) Nyenti, 2006& Nitko, 2001).* It is analogous to you taking a video of an event. It could be you taking note of the number of times a student gets an answer right or how many times they come early for a class. It could also be you using a rating scale for example to notice how many times they give the correct answer in class. Whatever form it takes, the teacher must be very indigenous. It means that the teacher has to be consistent in the particular parameter. This is referred to as reliability in measurement (Norcinni, 1985). Your instrument is reliable if it consistently measures what it claims to measure. Also notice that the term validity often comes up in assessment literature. Understand it basically to mean that your instrument is truly measuring what it is claiming to measure or that it is genuine (Harden, Crosby & David, 1999)

We can illustrate the two concepts; reliability and validity in a way that doesn't require technical background.

Test here refers to the tools or instruments that the teacher uses to gather information about the students performances (Ramsden & Entwistle ,1983). The exam which the students take

for example is a test. It is an instrument for gathering information about the students' performance. A test measures or quantifies the students 'performance in a particular skill or knowledge area. Teachers use formal and informal tests. Formal tests are usually official exam, like the end of Term or Year exam laid down by school policy.

However it is more appropriate to regard to tests like the GCE exam or BACC exam as formal tests because they follow more rigorous procedures that enhance more reliability and validity. These exams are formal partly because they are standardized. (in a standardized exam, students are expected to chose questions from the same pool, are scored in the same way etc). Informal tests do not necessarily have a formal structure, not necessary announced prior to taking them, and can be impromptu (Mapel & Jaque, 2016). A teacher maybe observing and taking note of how many times the student answers questions in class. In this case, the teacher is using an implicit observation tool, to note the regularity of students' participation.

When the teacher has administered the biology test and marked it, he will provide a column of marks for the various criteria or parameters he has measured and those for the test. She will now come up with a cumulative mark (Aqil et al, 2024). This mark in our illustration is on 30. At this point, the maximum score per student is 30. He then records students' marks as such. At this point he can carry out an evaluation; finding out if the objectives of the learning have been achieved and to what extent. The teacher can finally evaluate that 75% of the objectives were met. (this in some cases would be to square the product of the reliability coefficients and multiply by hundred for example). If the teacher then ends up concluding that the students can move to the next class, this is often referred to as assessment of learning (AoL). This type of assessment takes an administrative dimension. If it is decided that 75% is unsatisfactory as would be in medicine and piloting where higher levels of precision are required, and that the areas where 25% is lacking have to be retaken, then this is referred to as assessment for learning (AfL) (Nyenty, 2006; Wirsiy, 2022)

There are basically two ways he can evaluate his students; criterion referencing and norm referencing. In criterion referencing, the students performance is compared to the criterion or the benchmark and the student is said to have failed or passed based on the criterion. In formative assessment, remediation would be given to the student based on the areas where they have difficulty (Aradena et al, 2022). Focus here is on mastery of the said skill. On the other hand, the norm reference test sets a standard on how learner of a particular age are supposed to perform, and compares the student with other students. The screening here is to find out which students are failing behind their peers.

If you were to quickly comment between the two, it can be said that they have permeable characteristics; criterion and norm referencing. However, it can be noticed that criterion references focuses on the criterion or the parameter in questions, whereas the norm reference focuses on the rest of the test takers. It is common place to observe that when children return from school, the first thing that their parents ask them is usually what their position was in their class (Aqil et al, 2024) Every parent is happy when their child was first in class. This however does not necessarily mean that a child who took 3rd position in the second term and is

now taking 1st position in the 3rd term has learned more. It rather means that the other kids may have dropped.

We don't also forget that a child can be 2nd in a class of 40 students and another child is 2nd in a class of 90 students. Who among these two kids is performing better? We don't have enough information to answer that question. However, if we define our parameters, we can respond. In terms of position, the child who came 2nd in a class of 90 has performed better. This is a kind of norm referencing. We can compute the ratios; 2:40 and 2:90. You observe that the ration of the second student is larger. It is explicit therefore that the last member of the class will have the maximum value of 1 which is 90:90. In this way we can compare the performance of two students from two classes or schools in terms of their position or norm referencing.

In Cameroon, both systems of referencing are employed. However, the norm reference takes precedence in most educational systems because it is easier to manage (Yildirim & Bilican-Demir, 2022) . Report cards in primary school have recently begun to emphasize on criterion references. Children in nursery school are not necessarily expected to be classified as first and second, but rather, their report cards are to depict or list the competences of the child. It can be argued that stating what the child can do indirectly also says what they cannot do yet.

However, in secondary schools in Cameroon, a good number of the schools employ norm referencing (Yan et al, 2021). There is strong accent on marks and positions, so much that it even invites unhealthy completion and examination malpractice. You would hardly hear a physics student boast that they were able to resolve kirchoofs laws by end of first term for example, or a literature student tell you that they were able to read three novels in the first term. They would however excitedly tell you that they were first position or second and so on. As such if they are the last in their class they hardly tell you (Yan, 2015). But then, the first position in some schools, can take 30th positions in other schools for the same program and time.

A seasoned examiner mentioned to me that during marking, he is usually able to determine where the park of scripts is from, in terms of whether it is an 'Evening' school, day school, private or mission (Taole, 2022). These of course are issues that affect reliability in scoring especially in areas like literature and languages as well as geography for example, where students can easily use examples that are linked to real life landmarks (Othman, 2019). But then, the idea is to say that marks themselves have no use in themselves (Van Der Kleij & Adie, 2020). They are a means to an end and not an end by themselves. The end being the knowledge, skills and attitudes or competences they represent. This is an ardent task, especially, in a country like Cameroon, where areas of assessment and evaluation are just being introduced as university departments.

As we write this paper, CRTV news agency just announced the 2024 edition of the BACC exam, indicating a drop from 76 to 26 percent in the national performance. Indeed, a close associate mentioned that there were instructions that a pass should be strictly 10 on 20 and above. It is not uncommon that overall performance is often affected political processes (Brown, 2015). During moderation of exams, like the GCE or BACC, which are standardized,

the criteria to determine cut off marks are statistically supposed to be determined (Black & William, 2010). During the school year, a lot of issues do not go as planned. As such, students scoring 75% this year may score an A grade in a particular subject, even when students who had scored 80% in that subject didn't score an A grade few years behind.

Many educators cater for this problem by determining the class average. Many secondary school report cards have a class average (Deluca, 2018). Therefore the class average determines the pass mark in that subject for example. If the class average were 15 on 20, therefore students scoring below 15 have failed and those scoring above and at 15 have passed. Similarly, if class average is 8, therefore a student who scored 9 has passed. The issue of class average is important in norm referencing because it allows for considerations such as poor implementation of program and so on (Ahmed, 2018; Aliakbari et al, 2023). Issues that cannot be directly determined, these are referred to in testing as random errors. However, other issues like the difficulty of the test and so on could be determined by doing more complex analysis that are beyond the scope of this paper.

Having said this, it is important to mention that both systems are directly linked and have their places in educational systems (Beerepoot, 2023). Because of the limitations of tests as tools, other methods are being employed in higher education such as students' portfolios and projects (Adhikari, 2023). A typical grading in the university in Cameroon lists courses in the transcripts and their scores, and of course without any mention of the competences. The time most of the competency areas are mentioned is when they campaign students for admission. Although there are competences well spelled out in the course outlines and the curriculum, some students do not get to seeing them. And the curriculum contents may not be very readily available.

The point here is that there has been over emphasis on performance in the educational systems such that stakeholders begin to see marks as an end. In some grading systems like the one employed at the University of Yaounde I, a student must score an average of say 2 on 4 to move to the next level. The University of Buea allows students to ascend to their final year, even if they still owe a first year course, but must validate the course upon graduation. These are two systems with its merits and demerits. But the take home point is that a student who could graduate in one university with a GPA of 3.5 can graduate in another university with a GPA of 2.5, with the same input. Therefore the point is that the grading systems and other factors have serious consequences on the reflected performance scores.

Our discourse on marks and the grading system was intended to illustrate that marks and GPA are supposed to reflect the knowledge, skills, competences and attitudes possessed by the bearers (Tchombe, 2019). But that unfortunately, because of the random and classical errors introduced during the process through which these marks are obtained, this is not always the case (Capan, 2020). The lack of trust in exams and certifications is evident partly in the need for pupils to take parallel or duplicate exams, which may even be of lower quality. For example, many schools in Cameroon require pupils going to form one of secondary school to take an internal exam, even when they pass the Common Entrance Exam (CEE). Children are certified to have passed the CEE and the First School Leaving Certificate (FSLC), and are

warranted to also take internal exams in various secondary schools. Justifiably so, to check for particular competences, but this could simply be a means through which schools introduce processes that yield them dividends even if they are not necessary in their essence.

CEE and FSLC exams, qualify pupils to enrol into secondary school, but the exams introduced by secondary schools as recruitment exams for their candidates may be lack of cooperation between both MINEDUB and MINESEC on this transition process. A similar scenario occurs, when students transit from High School to university, where they pass the GCE and BACC exam, but are expected to take exams into various professional programs or university programs. Justifiably so, but it questions their trust on those preceding exams and their predictive validities for those programs (Ferguson, 2022).

 However, one can begin to pose a question as to what syllabuses secondary schools use to set exams to recruit pupils from primary school, and what syllabuses university institutes and universities use when they set exams to recruit students from secondary school. This begs the question as to the extent of cooperation in design of school programs when they design school programs as learner's transit from primary to university level.

We could even go further to say that the industry also questions the predictive validity of exams for students who graduate from university. When schools train students, the purpose is for the industry. It has been noted that there is the tendency for schools to train students and forget that they train them for a particular course or to occupy particular socioeconomic positions in society (Cuthbert & Konig, 1965). By and large, students are trained to solve problems. The industry provides the infrastructure required for this to happen. Meaning that CDC cooperation for example provides the infrastructure required for our farmers to thrive in producing food and other raw materials like rubber for example.

But if the schools and departments of agriculture do not know the kinds of specific skills required by CDC, then even when the schools and departments of agriculture continue to produce agric technicians and farmers, they would remain under or unemployed even when CDC would have vacancies (Cuthbert & Konig, 1965).. This analogy can run across the board to any sector like medicine, where hospitals are in need of specialists, and schools and departments of medicine are producing specialists, who are under or unemployed.

The idea is to the extent of ecological validity of our school programs. The tendency is to recruit expatriates in senior management positions, who may not be ready to close this gap. We can say that the marriage between the school and the industry has failed. Furthermore, that the schools train students as if what they leave school does not concern them (Jahan, 2023). While the industry operates as if the kind of training students receive in school does not concern them. This is partly due to the timidity of assessment for learning which the responsibility of career guidance counsellors is partly.

The word measurement is not common is the social science and education as it is in natural sciences. Natural science students are versed with tools like scale balances and rulers. Even those in primary school do. However students in Social Science, Education and Arts (SOSEA) have to wait till they enrol into undergraduate programs to learn that a test is a tool, even

when they have been using it over the years (Nyenti, 2006). Some classroom teachers may not even view the test as a tool as we write. This cannot be unsurprising, given that most programs for assessment and evaluation are still to reach their prime, in the faculties where they are running. The Universities of Buea and Yaounde I and a host of other institutions have faculties of education, running degree programs in assessment and evaluation.

During the earnia (Educational Assessment and Research Network in Africa) seminar that took place in Buea in 2014, at its inception, two professors of assessment made analogies that I find useful for our discourse. An attendant asked if it was proper for a student to score a zero or 100% in an exam. One of them responded by saying that it was inappropriate! According to this position, a test exam is a tool that you use to measure an attribute, like you can use your ruler to measure the height of a bottle of export beer. If your ruler is shorter than your bottle, you won't be able to know the height of the bottle. It therefore means that if your students score 100%, it is not a good one for that group. That exam does not have potential to measure the upper limit of attributes you are trying to measure.

As to whether, a student can score a zero in an exam, in actual statistical language, this is not possible because by the time you find the z scores, no value can take 0. However, we are not unaware that many teachers submit marks to their Deans as 'figures'. We can illustrate this in a way that is meaningful to 'lay' people as is the essence of this paper. If you ask children to climb a ladder, the first rung on your ladder should be shorter than the shortest person in the group. In order words, if the first rung is too high, the shortest person is not able to climb on it. As simple as the analogy is, it is important to know the easiest things that students can do and the most difficult for them to do (William & William, 2022).

We cannot belittle the fact that every exam has its purpose and essence, but in spite of the fact that we have to classify students, promote them, which are elements of assessment of learning, the purpose of assessment for learning is different. Assessment of learning quantifies what students know for administrative purposes. Assessment for learning however, measures where students are in their learning, where they need to be, in order to find out what they need to do to get there. This is analogous to the Vygotskys ZPD. So notice that there is over lap, but the difference is in the intention (Vygotsky, 1978).

Assessment for learning is broader in that it not just finds out what was learned, if finds out how it was learned, and so on. Again, in assessment of learning, a teacher would say 80%, excellent for example and end there. Assessment for learning goes beyond this, to find out why the student didn't score the remainder of the 20% and what they can do by exploring their study skills and learning strategies for example. Furthermore, it can explore why socioeconomic status, religion, and assessment strategies affected the student learning. All decisions taken are meant to find out how learning can be improved (Wirsiy, 2022)

Made mention has been the fact that over reliance on assessment of learning has caused a lot of tension and rubbed students and teachers of the beauty of trial and error as an authentic learning process. Students are mostly rewarded for their performance and little is done about rewording them for their motivation and efforts. Students are afraid to fail. This is synonymous to afraid to learn. Because we have to produce results or to perform, there has

been mark inflation and it doesn't always work well, because these marks do not reflect their attributes and undermines the purpose of certification (Wirsiy, 2023)

The leaking of exams over the years is arguably partly due to pressure on schools, teachers, parents, students and promoters and proprietors for performance. This is even encouraged by the effects of some organizational procedures (Republic of Cameroon/World Bank, 2012). Performance Based Financing is an example of high stakes drivers that can encourage schools to promote performance inflation and examination malpractice. Nothing is wrong with giving incentives to schools that are performing well, like organizations and funders have been doing (Republic of Cameroon, 2009).

However, the negative impact includes focusing on performance at the detriment of achievement. Little would you hear a parent say that their child can add two digit numbers already, but they'll rather say that the child scored 80% in a test! The point here is that the focus shifts from the skills that the child has acquired to the rating of those skills. This adversely creates tension among learners and rubs them of their willingness to make mistakes and be creative (Willis et al, 2023). Effort is not encouraged, but rather, this encourages routines, doing the old things in the same way and creating better and the same results.

Before we end this illustration, read the except below, and you could gain more insight into the context of assessment literature;

In a nut shell, in order to evaluate, we need to appraise (describe in details the status quo), assess (identify the parameters on which evaluation is based and objectives), measure (quantify the parameters in terms of them meeting the objectives) and then evaluate (align the criteria to the objectives and conclude from the quantities if the objectives were satisfactorily met or not). The most important drive home point is that in spite of the fact that teachers use these terminologies in primary and secondary schools interchangeably to mean roughly the same thing; these are logical procedures that are distinct in their characteristics. It is therefore important that in spite of the comfort in our local contexts to use these; that we also illustrate these procedures and terminologies so that younger teachers getting into the field should gain the vocabulary that enables them understand assessment literature.

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