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## The impact of formative assessment on the learning process and the unreliability of the mark for the summative evaluation

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### Abstract

In this work, we highlight the impact of formative assessment on the learning and the unreliability of the mark for the summative evaluation process. To achieve this study, we distributed to 250 students of the common core sciences, a questionnaire to the representations of the students acquired during their learning situations. The questionnaire covers the main concepts of the courses that have been taught, namely, electric current; electric voltage; quantity of material and molar concentration. After collecting all the answers to the questionnaire, we corrected them. We looked through the summative evaluation for the acquisition of concepts by students and the effect of adjustment of representations on their marks. We put in question the reliability of the marks that we can allocate. Therefore, we distributed photocopies of 50 copies before their correction to 20 secondary school teachers, in order to have more information on systematic errors of the marks, their limit and their reliability. On the light of these results, we can say: - Formative assessment can help teachers to anticipate in advance treating the gaps of the students and changing these methods, if necessary, in the learning process. - Summative assessment may not reflect the level of acquisition of the taught concepts. Therefore, the revision of assessment methods of the concepts among learners is required. These evaluation methods are unable to properly assess the level of acquisitions of students, as they differ from one teacher to another.

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## 1. Introduction

In an education system centered in teaching and learning, assessment should promote learning. However, as has been noted (Zessoules, & Gardner, 1991), some assessment practices often oppose the emergence of learning and there is a great lack of congruence between the objectives pursued various learning and classroom strategies chosen by teachers to assess these learning. When we look at the evaluation of learning more accurately, (Bloom, Hastings & Madaus, 1971) can be summarized into functions depending on the time and the intent of the evaluation. From several studies, the authors divided the evaluation into three functions: a prevention learning difficulties "diagnostic evaluation" function for regulating learning "formative assessment" and a function certificate or social recognition "summative evaluation".

Indeed, learning difficulties are immediately processed, either by modifying the route according to the pace of student learning, either by adjusting the educational context through formative assessment (Scallon, 2000). Family summative evaluation is very important as it is informative. It provides students and parents the necessary information for educational decisions to which they deserve: personal working method, choice of possible support offered by the school or outside of it, course selection or training courses the better suited to the skills or aspirations of the child. This assessment is built around the exchange between, on one hand, teachers and the other side, the child and his parents (Eiss, 1991).

The assessment can have positive or negative results because it can easily lead to errors of judgment. It could lead to results poor and excellent decisions. It is for this reason that all the underlying elements in an evaluation should be carefully examined. Each assessment has different goals and occurs in specific contexts, and the design must adapt to changing circumstances, while meeting the challenges of scientific credibility. The school assessment to measure student achievement in order to possibly adjust the lessons to continue, but after the system followed in Morocco educational decision is based, in large part, on the notation, the result of the evaluation to student work regardless of whether or not the progress of the intellectual and conceptual level of the students.

Therefore, it seems important to study the link between the school assessment and tracking mode level representations of learners depends largely based on current teaching practices. In other words, one wonders if formative assessment has an impact on the student learning process and if the rating assigned by the summative evaluation is reliable.

## 2. Study Methodology and characteristics of the survey sample

The study population consists of 250 students Trunk shared some high schools sciences Morocco. This sample was chosen so that it is observed and studied during the two stages of this study.

In the first step we aimed to measure the impact of formative assessment, that's why we distributed a questionnaire consisting of 16 questions covering the key concepts of the course which has been taught and are: electricity; electrical voltage; the quantity of material and the molar concentration. We then proceeded to rectify the misrepresentation of students based on the results of the questionnaire.

In the second step performed after a week of the first step, we aimed to verify the reliability of the numerical rating for the summative evaluation, that's why we have prepared a control that is based on the notions corrected in the first step. We want to challenge our patch so we photocopied 50 copies of control before the fix. We then asked 20 teaching physical science in secondary qualifier to correct its copied according to the scale that we have already established and we took the rating given by our correction to the originals as reference.

### 3. Analysis of results

#### 3.1. Representation and analysis of the results of the first stage:

##### 3.1.1. Representation of the results:

After collecting the questionnaire, we obtained the results listed in Table 1 and shown in Figure 1.

Table 1. Percentages of students in each mention.

Mention	too low	low	average	well	Very well
Interval of the mark	[0 – 5]	]5 – 9,9]	[10 – 12]	]12 – 16]	]16 – 20]
Number of student	12	80	115	43	0
Percentage	5%	32%	46%	17%	0%

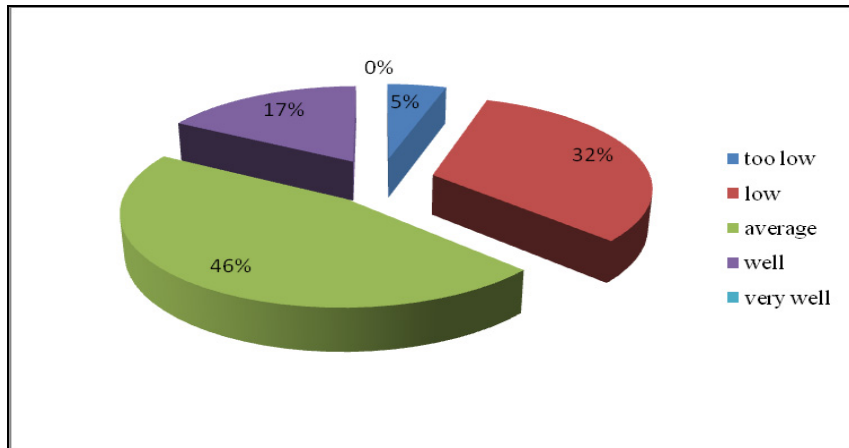


Figure- 1: Evaluation of the acquisition of concepts

##### 3.1.2. Analysis and interpretation:

The analysis of these data shows that 46% of students appropriate an average level that reflects disabled the absence of effective formative assessment and used to good acquisition concepts of the course. While 32% have gained slightly concepts of the courses taught, in fact, the results of the correction are poor in terms of knowledge. Furthermore, it was found that 5% of students did not acquire even the basic elements in their learning situations. So we made an adjustment for misrepresentations of students based on the results of the questionnaire.

#### 3.2. Representation and analysis of results of the summative evaluation of the second stage:

After a week, we have prepared a check for the same population that relies on the concepts that we have corrected.

##### 3.2.1. The results of our fix:

###### a. Representation of results:

After correcting the original copy of the control, we collected the results listed in Table 2 and shown in Figure 2:

Table 2. The percentage of students in each grade interval of the mark

Mention	Too low	low	average	well	Very well
Interval of the mark	[0-5]	]5,10[	[10,12]	]12,16]	]16,20]
Number of students	4	37	95	94	20
Percentage	1.6%	14.8%	38%	37.6%	8%

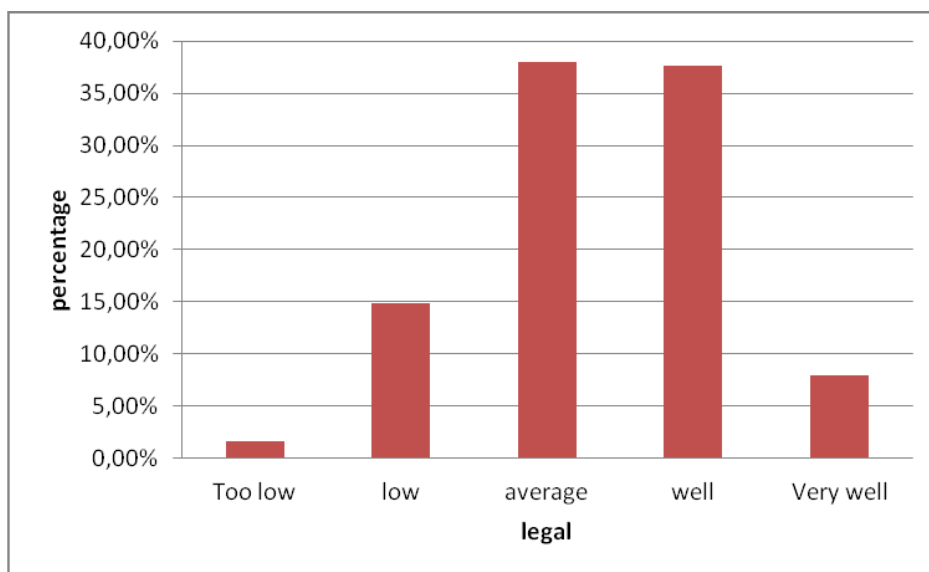


Figure 2. Assessing the acquisition of concepts after the revision.

*b. Analysis and interpretation:*

-The Percentage of students who have exceeded the average of 10/20 was too high 83.6% compared to our expectations and therefore the correction of high performances had fruit.

- The percentage of students who have not exceeded the average of 10/20 was low 16, 4%.

Therefore, we can say that the lack of formative assessment that occurs during learning is responsible for misrepresentation of students because formative assessment can increase the degree of control of certain learning by identifying deficiencies.

*3.2.2. Questioning our evaluation:*

We challenged our correction and therefore we chose 50 copies we photocopied before correcting them. We then asked 20 teachers of the physical sciences in qualifying secondary to correct the copies according to the scale that we have already established and we have taken the correction rating by our reference. We divided the marks into 5 groups with intervals of 1,2,3,4 and 5 rating groups respectively] 16,20],] 12,16], [10,12], ] 5.10 [and [0-5].

*a. Representation of the results:*

We collected the results listed in Table 3 and shown in Figure 3.

Table -3: Percentage marks in accordance with the reference mark

group	1	2	3	4	5
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number of professors whose mark is in agreement with the reference mark *	11	15	7	16	2
The percentage of teachers in accordance with the reference mark*	55%	75%	35%	80%	10%

\* The reference mark: the rating given by our assessment to the copy of the student.

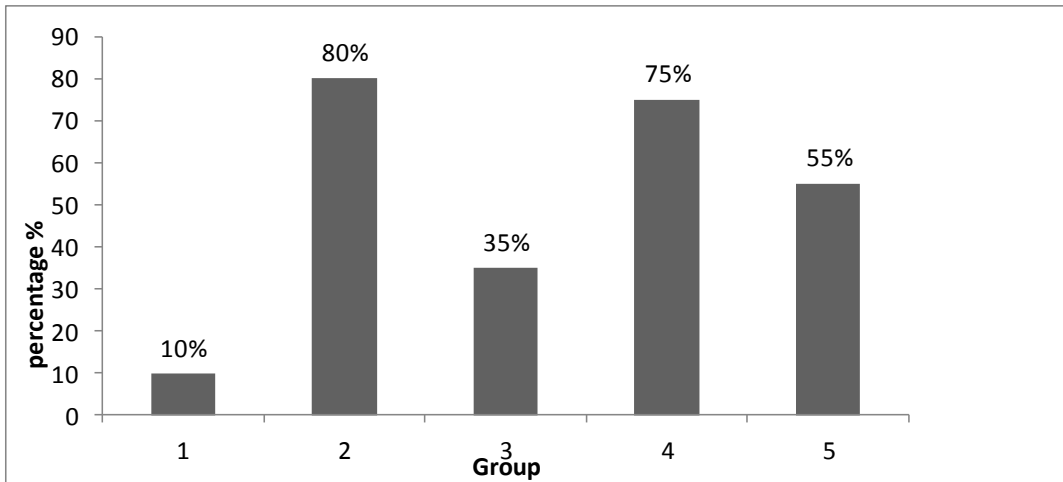


Figure 3. Percentages of teachers in accordance with the reference mark

*b. 2 Analysis and interpretation:*

The results obtained (Table -3, figure -3), we notice that there's always a difference between the reference mark and that given by the other teachers, the percentage of variance (Table 4) between the two ways of rating ranges from 1% to 13.14% in our case given that the subject matter is scientific.

Table 4: the percentage difference between the average mark  $N_e$  of other reviewers and mark the average rating  $N_r$  reference

group	1	2	3	4	5
Difference ( $N_r - N_e$ )	0.64	0.50	0.75	0.22	2
The percentage difference	3.28%	3.85%	4.10%	1.1%	13.14%

So, this gap will surely be more important for the humanities, subsequently these marks may in no case be a reliable reference and fair representations of learners.

One is forced to question the validity of the total mark given, and propose other evaluative ingredients that can be added to a better judgment on the intellectual and personal development of students.

#### 4. Conclusion

At the end of this survey, we can conclude that the summative evaluation through a numerical mark remains unable to properly assess the level of achievement of students, which can be monitored and controlled via rather a formative evaluation well built and well studied and not freeze to remain typical modes to learn about the conceptual development of students. We therefore draw that formative assessment can help teachers anticipate in advance to fill the gaps and change the methods in the learning process.

In addition, it was noted from the statistical results of the inspection, the encrypted due to the summative evaluation rating may not reflect the level of acquisition of the concepts taught because it changes a correction to another. Therefore, the revision of methods with which to control the conceptual change in learners is required.

Indeed, the mark is a general indicator of evaluation that encompasses all aspects of learning. And very limited role of the note may give false information about the acquisition of the concepts taught.

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