



Research Paper

International evaluation and the choice of educational policy - Case of Morocco TIMSS/2015 -

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Abstract - Evaluation is a process of knowing the degree of achievement of the objectives already identified. This article focuses first on the analysis of the current institutional framework of the evaluation of Moroccan educational policy and on the analysis of the academic performance of Moroccan students of the 8th grade as measured by TIMSS-2015. We will conduct a descriptive analysis of the results of the students at the global level and then of the disparities. The aim here is not to understand the learning process or to find explanations for the level of student performance, but to include international assessments of student achievement as an incentive for the evaluation of educational policy and the regulation of supply and demand.

Keywords: TIMSS-2015, evaluation, education policy, comparative studies, learning, supply and

Received 05 Jan, 2021; Revised: 18 Jan, 2021; Accepted 20 Jan, 2021 © The author(s) 2021.

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I. INTRODUCTION

Education has always been seen as a priority sector for states and for households that spend a significant portion of their income on the education of their children. It is assimilated to a production activity which transforms "human" into human capital by equipping it with the skills required in the employment sector. This is why political decision-makers and those responsible for education systems look in international comparisons for elements which would help them in evaluating their actions in the service of improving their own systems. They also seek to ensure that the level of students in their countries does not deviate too far from international standards [1]. The major international surveys on student achievement (TIMSS, PIRLS, PISA, etc.) have established themselves as a link between the field of research and educational policy [2].

The publication of the results of TIMSS 2015 by the International Association for the Evaluation of Educational Achievement (IEA), coincides with the first wishes of the bodies of international evaluations addressed to the educational community, both nationally and internationally; this publication is able to achieve the sustainable development goal relating to education (SDG4), for which commitments have been made by states, governments, the international community and civil society.

The TIMSS surveys first seek to gain a better understanding of the educational systems with regard to the teaching of mathematics and science. They distinguish several levels of curriculum (school programs prescribed, implemented and attained), and are primarily concerned with teaching content, their presence in the programs and pupils' achievements in relation to these contents. In addition to the comparison between countries, the results of TIMSS also made it possible to highlight the urgent and priority measures to be implemented as a response to the low level of learning observed in the items of the evaluation [3]. In addition, in these surveys, the questionnaires distributed to students, teachers and school heads led to an inventory of fixtures on many themes: learning conditions in mathematics or reading, content of programs in different disciplines, school autonomy policies, student admission policies in schools, etc. Beyond formal institutional frameworks, the data collected allow an analysis of the reality of the implementation of educational policies by local actors [4].

TIMSS assessment is not an end in itself: it is at the service of learning and is therefore at the very heart of the act of teaching. It should be considered as a tool for evaluating and identifying the successes and difficulties of national programs [5].

The school is considered as a main pillar in the construction of the Moroccan societal project and its role impacts the training of generations and their contribution to building the nation, but it needs, to accomplish

this role, to experience sustainable development based on qualification of human and material resources. With that, evaluation is among the indispensable process for the success of educational policy.

Given the complexity of the approach to the evaluation of educational policy, a good reading of the results of international evaluations, in particular TIMSS-2015, recommends that it should not be linear. Any evaluation of educational policy requires the transversal and longitudinal diversity of the results of the evaluations and of the data of the indicators describing the operationalization of the educational policy.

This article is part of a research analysis of the results of assessment of student achievement as an incentive for the evaluation of educational policy and the regulation of supply and demand.

II. EVALUATION AND INSTITUTIONALIZATION

In Morocco, society has changed considerably with the emergence of an increasingly demanding citizenship. Citizens are directly interested in evaluating the quality of public action up to citizens' expectations in terms of public services, and concretely integrating the principles of good governance and the correlation between responsibility and accountability. In public policies according to the constitution.

Article 1: Morocco is a constitutional, democratic, parliamentary and social monarchy. The constitutional regime of the Kingdom is based on the separation, balance and collaboration of powers, as well as on citizen and participatory democracy, and the principles of good governance and the correlation between responsibility and accountability.

However, it is essential that decision-makers obviously move from a logic of means to that of results. Evaluation is an essential instrument of egalitarian and democratic governance, in order to report to the population and to the main actors in development and to initiate the regulation of policy, especially education policy at the opportune moment when a policy is found. Inappropriate or ineffective in achieving the expected results [6].

The evaluation of public policies in Morocco is a relatively new concept despite the constitution adopted in 2011 which defines the role of parliament in the evaluation of public policies, by announcing in its article 70 that parliament exercises legislative power, it votes on laws, monitors government action and evaluates public policies. Similarly in its article 101, it provides for an annual session reserved by the parliament for the discussion and evaluation of public policies.

The establishment of a national assessment strategy must not be done without taking into account Morocco's new trends in the field of governance, namely the advanced regionalization adopted within the framework of the new 2011 constitution, in particular the article 137 by announcing that the regions and other local authorities participate in the implementation of general State policy and in the development of territorial policies through their representatives in the Chamber of Councilors.

In general, the thematic committees of parliament call on expert offices to carry out their evaluation mission. It must be said that the parliament does not have sufficient engineering, methodological tools, human and budgetary resources necessary and experts to be able to carry out itself the evaluation of public policies or the conduct of a professional evaluation process.

The reports from different assessment bodies, donors, the National Assessment Authority (INE), international assessments of student achievement and the Department of National Education in Morocco constitute the only element of assessment. Prospective available to Parliament. The organic finance law published in 2015 gives parliamentarians an extended power of evaluation to assess the performance of public expenditure, it provides for the compulsory provision to Parliament of certain information to which are associated objectives defined according to the purposes of general interest. As well as quantified indicators making it possible to measure the expected results and which are the subject of an evaluation aimed at ensuring the conditions of effectiveness, efficiency and quality linked to the outputs.

The performance report submitted by the ministerial department for national education to parliament contains information on indicators of educational supply and demand, in particular indicators relating to assessments of pupils' achievements and learning.

Traditionally, the school demand and supply is limited to the process of the school map perspective, in particular to identify projects for the creation of school places. In the education system, household demand is not limited only to the quantity of goods or services, but it takes into account the expectations and needs of their children, psychically, emotionally, cognitively, physically, artistically and social. Based on the previous definition of household demand, the education system should provide their children in addition to infrastructure, the opportunity to acquire the values, knowledge and skills that prepare them for success. Integrate into working life and offer them the opportunity to continue their learning, whenever they meet the conditions and hold the

required skills, as well as the opportunity to excel and distinguish themselves whenever their skills and efforts empower them. On this, we advocate the notion of educational and non-educational supply and demand.

III. EVALUATION IN THE 2015-2030 STRATEGIC VISION

Morocco's participation in TIMSS-2015 occurs in a context marked by institutional reform: the 2015-2030 strategic vision drawn up by the Higher Council for Education, Training and Scientific Research, which aims to establish a new school Moroccan which embodies the principles of equity, equal opportunities, quality for all and the promotion of the individual and society.

Indeed, the diversification of evaluations in Morocco is encouraged by the 2015-2030 strategic vision, in particular article 72 which announces that the implementation of curricula, programs and training must be systematically subject to regular evaluation. This should extend to reform plans, educational and training achievements, textbooks and teaching tools, and teaching and training practices. It is carried out with reference to national and international standards.

In addition, the development of the prerequisite assessment makes it possible to examine the level of mastery of knowledge and skills of basic subjects among students. Indeed, students often have gaps in terms of mastering the knowledge and skills of lower levels. By sharing assessment test diagnostics, teachers improve their classroom teaching practice by revising their lesson plans with careful consideration and specific to students' actual difficulties. The generalization of this evaluation to all establishments and the use of data (school director's questionnaire, teacher questionnaire, etc.) in Morocco makes it possible to carry out the evaluation of schools by responding to the directives of the strategic vision 2015- 2030 in particular the following article:

Article 110: The establishment of evaluation programs for education and training establishments and research institutions, with a view to selecting those which stand out the most, to enhance and motivate them more; which is likely to create a climate of emulation between the establishments and to develop excellence.

IV. ANALYSIS OF THE RESULTS OF THE TIMSS-2015 INTERNATIONAL ASSESSMENT AND THE POLITICAL CHOICE

TIMSS is one of a series of comparative studies on academic performance conducted since the 1960s by the International Association for the Assessment of Educational Achievement (IEA). The program focuses on the acquisition of skills in mathematics and science for students in the 4th year of primary and 2nd year of college (grades 4 and 8). In this part we use some data from the TIMSS 2015 results base of Morocco published on the official website of the TIMSS-2015 evaluation.

It is also important to note that the proficiency levels achieved by students on the TIMSS-2015 tests reflect the accumulation of knowledge and skills developed in the home and school environment.

Several studies show that educational policies are linked to student performance [7]-[8]-[9]. More generally, international surveys on student achievement, in particular TIMSS, show that educational disparities exist in the different education systems studied and that this variance is explained on the one hand by societal factors, the impact of which seems limited and on the other hand, by the educational policies conducted. The exploitation of databases investigations International on student learning results in secondary analyzes linking the performance of students with educational structures and empirical means to question the policy choices. The results of TIMSS-2015 make it possible to assess the efficiency and equity of education systems while trying to determine the school and extracurricular factors likely to influence learning.

An effective education system enables all children to have the skills and attitudes expected (set by school curricula), i.e. it enables all or a large majority of children to achieve these basic skills in order to calmly pursue primary and secondary education.

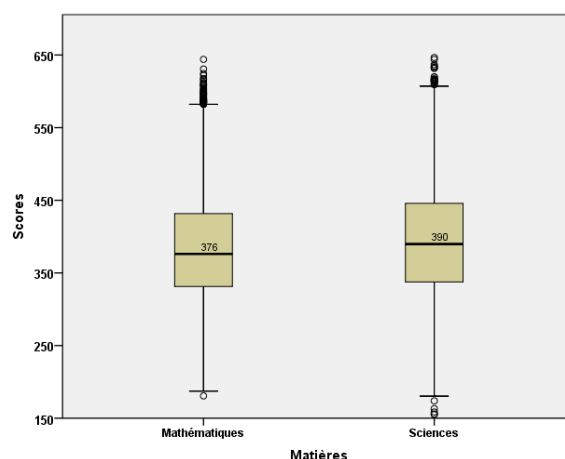


Figure1: Average student performance in Mathematics and Science in Morocco

The scores clearly show a serious problem in acquiring knowledge and mastering skills. Certainly, in Morocco, a significant investment has been made in terms of educational renewal, curriculum revision, restructuring of the cycle and diversification and production of new textbooks, but the results remain weak.

Several analytical hypotheses can explain these results: i) overloading of programs dominated by the theoretical aspect, ii) teaching method focused on the accumulation of knowledge rather than on the development of students' skills, iii) insufficient modernization of teaching methods and tools, iv) persistence of a uniformity of teaching which has become incompatible with the diversity of situations and the need to adapt to different realities.

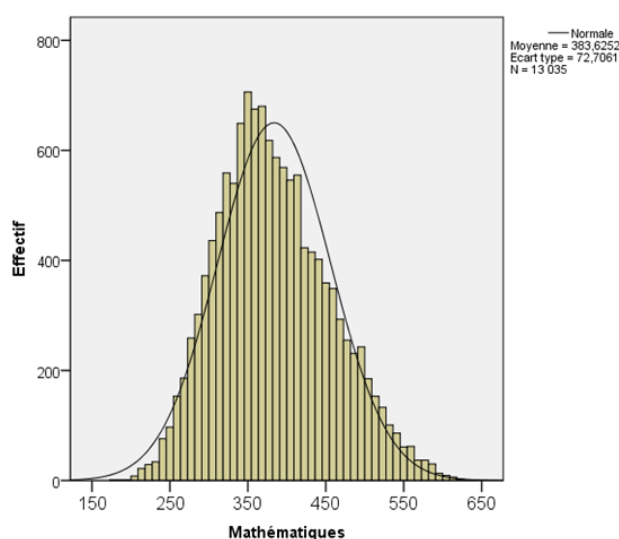


Figure2: Normal distribution of student scores in Mathematics in Morocco

Morocco obtained for mathematics a median of 376 and an average of 384 for the 95% confidence interval with a lower limit of 382 and upper limit of 385. For sciences the median is 390 and an average of 394 for the 95% confidence interval with a lower bound of 392 an upper bound of 394.

An equitable education system tends to reduce inequalities in enrollment and academic success between different student profiles and between different types of schools. A fair distribution of educational resources between pupils and between schools is a first step towards this objective.

In general, the scores of the evaluation results reflect the involvement of the teaching team in the school. Obviously, the evaluation of schools is an extremely interesting and crucial aspect of evaluation.

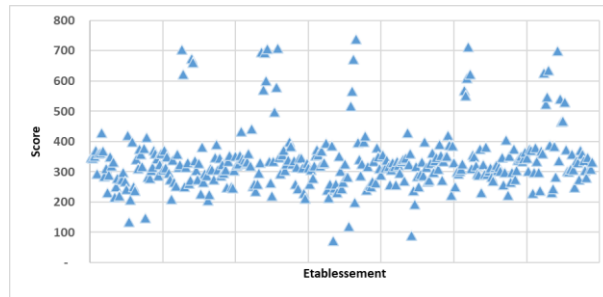


Figure3: Student scores in Mathematics by school in Morocco

In Morocco, school principals do not have the administrative or budgetary autonomy allowing them to take measures to solve problems specific to the school and the school community does not feel responsible for the results of the performances since their participation, ownership of solutions and the capacity to take initiatives remain extremely limited. Moreover, it is often a weak link in education systems. It is also important that measures be identified and concretely put in place so that the resources mobilized and national education policies actually reach the level of schools and that the latter effectively transform the resources at their disposal into learning outcomes. , in particular the establishment of a legal and institutional framework for the local management of the school, including the monitoring and evaluation of achievements, as well as the local partnership framework with the parents of pupils, the municipalities and the society civil. A World Bank study has shown that the establishment of management and accountability at the school level in Latin America have had positive results on student attendance, retention and achievement. It took almost five years to see significant changes [10]. Similar results were obtained in the Philippines where it took more than three years to see changes in student achievement, retention and completion [11].

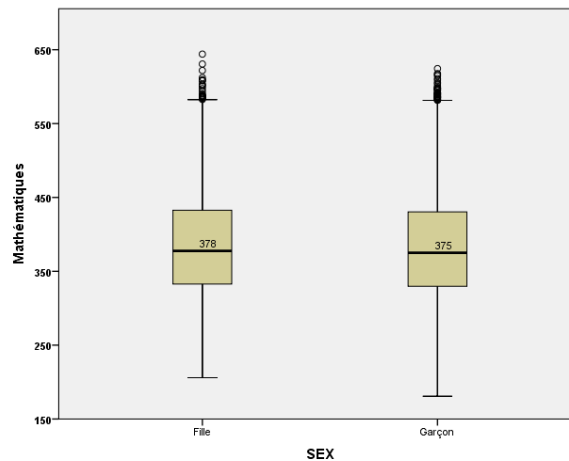


Figure4: Average performance of students in Mathematics by gender in Morocco

On average, girls have slightly higher median scores than boys in all assessment disciplines and the differences between scores (found in the boxplot) for girls are smaller than for boys.

The legal age of pupils at the level of the 8th year in Morocco is 13 years old, the recorded academic delay can be justified by several hypotheses, namely the integration of children from the second chance school, the late entry of children in schools and also by the phenomenon of repetition. Taking into account the official statistics on repetition in Morocco, we first favor the hypothesis of repetition in this analysis.

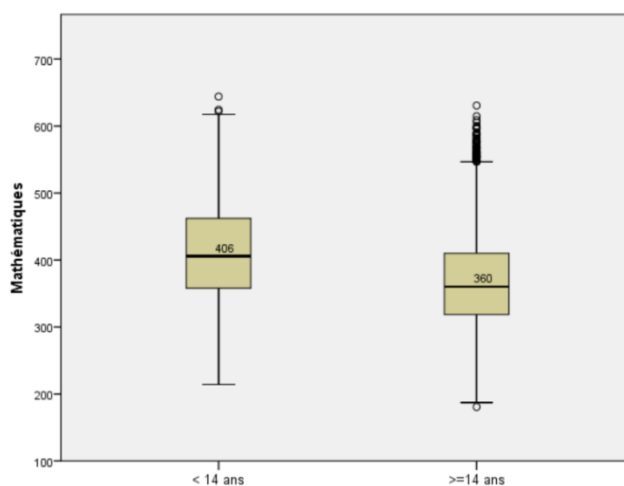


Figure5: Average student performance in Mathematics by age group in Morocco

Pupils who have repeated (upper age) have significantly worse results than those who have not repeated. On this, we can therefore wonder about repetition, and its effectiveness. The phenomenon of repetition does not bring the expected benefits in terms of acquisitions. This confirms the ineffectiveness of recourse to repetition as a remedial measure in relation to academic difficulties intended to manage pupils' difficulties and their differences in the pace of learning in the acquisition of basic skills; while increasing the risk of failure and wastage, repetition does not solve the problems of pupils in difficulty and does not allow them to make up for the poor mastery of skills.

By examining the results of the countries in TIMSS-2015 we see the absence of the phenomenon of repetition in the system of countries classified among the top ten countries in TIMSS-2015. Repeaters are often demotivated. This is not to call into question the practice of grade repetition as a whole. However, accompanying measures are necessary for greater efficiency.

Indeed, the phenomenon of repetition remains worrying for Moroccan educational policy. Between 2015-2016 and 2017-2018, the average repetition rate increased slightly to reach 12.3% at the primary level, rose sharply to reach 22.8% at the college level, against a slight stagnation at the qualifier to reach 14.4%. Below is an illustration of repetition rates by region.

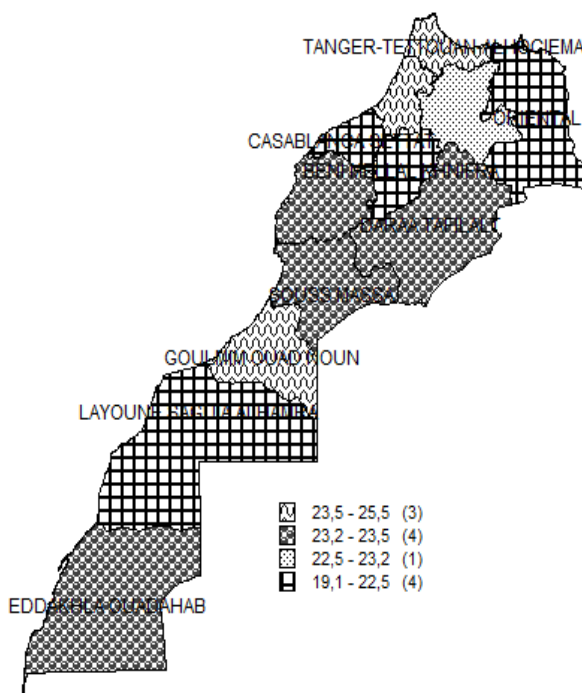


Figure 6 : Map showing the phenomenon of repeating a college year 2017-2018

School wastage is costly for Morocco. A pupil who repeats consumes an additional budget that would have served to educate many excluded from school. The macroeconomic analysis of education spending remains a source of concern. Indeed, Morocco, which makes education a national priority, has invested a lot in this sector in recent years, with an education budget allocation that represents almost 22% of the general budget and 5% of the GDP.

In 2017, the operating budget for the school department (primary, college and secondary qualifying) was around 41.2 billion dirhams, which represents almost 3.7 billion euros. Considering that the correlation coefficient is very strong between the number of pupils enrolled and the operating budget of education, we consider the existence of a linear relationship between the number of pupils enrolled and the operating expenditure of education. . On this, the cost of repetition for the year 2017 all cycles combined is estimated at around 6.4 billion dirhams, or 16% of the total expenditure for the operation of education, almost 583 million euros.

Accordingly, it is necessary to find innovative and effective solutions, to develop the educational model, to strengthen the measures and support actions through qualitative approaches responding to local specificities, to mobilize local managers and to put in place adequate educational tools that can be offered by technology.

On another note, the integration of educational technologies occupies an important place in the 2015-2030 strategic vision, in particular in relation to the curriculum and training. Morocco's TIMSS-2015 results show that students who use computers in schools perform poorly compared to others. On this, questions challenge us on the use of multimedia rooms in schools and on the place reserved for ICT in education.

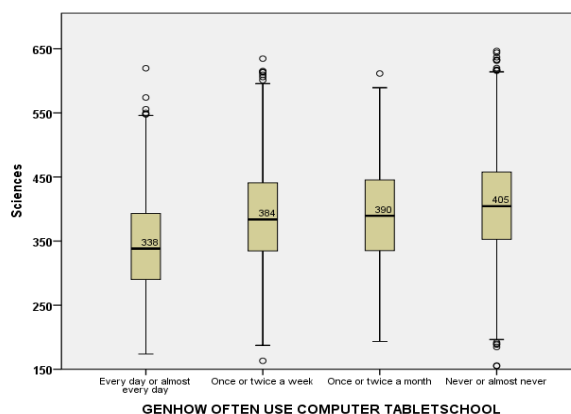


Figure 7: Average performance of students using computers at schools

It seems certain that it is not enough to equip schools with computers, but it will be necessary to put in place curricula that will ensure the greatest number of students access to ICTs so that they can integrate their use in development. Of their skills in the various disciplines.

The integration of ICT in our schools will allow students to benefit from the advantages offered by new technologies in terms of the development of learning. The entry of our system into the digital age is therefore necessary and unavoidable.

V. CONCLUSION

The evaluation of TIMSS is not an end in itself; it is at the service of learning and is therefore at the very heart of the act of teaching. It should be considered as a tool for evaluating and identifying the successes and difficulties of national programs. This type of evaluation consists of providing policy makers of education and training systems with the broad guidelines necessary for decision-making aimed at developing the teaching-learning process, curricula and programs as well as improving teaching conditions and the improvement of didactic and pedagogical tools. The TIMSS results also make it possible to highlight the urgent and priority measures to be implemented as a response to the low level of learning observed in the items of the evaluation.

Quality education remains a strong objective in Morocco's national education policy. The TIMSS-2015 assessment shows, on the one hand, that students still have serious difficulties in science and mathematics and, on the other hand, that the conditions for a quality education are not yet fully met. The 2015-2030 strategic vision faces several challenges, namely improving the completion rate, reducing disparities by gender and geographic area, and improving initial and in-service teacher training.

The use of international assessment aims to improve the ways in which the government of Morocco rigorously assesses the quality of education and improves the decision-making process at all levels of the education system. Indeed, feedback for teachers on student performance, thanks to participation in TIMSS, will allow them to define the skills that they will need to strengthen in class. In addition, the results of the assessments help policymakers to understand the overall performance of students and develop capacity building programs for teachers to improve areas with weaknesses and to distribute resources allocated to the education system, from the top down to the grassroots, which allows schools to retain students and help them learn. It is also important that school directors and decision-makers clearly communicate results to local populations so that they recognize the role of schools in improving results.

Indeed, to bring the educational reform to a successful conclusion, the resolution of the transversal problems of the system is essential. On the one hand, it is a question of ensuring the commitment and strong support of teaching staff in the reform. Any improvement measure must imperatively go through the education staff who must be able to assimilate it and implement it.

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