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Evaluative methodology to develop higher skills

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1. Introduction

The main purpose of this research is to present and explain deeply an evaluative methodology for improving the development of higher cognitive skills. It is made up, with a series of elements that pull over high cognitive skills and other premises of methodologies skills in some students, such as: A) To formulate a purpose that specify the aims of what you really want to achieve. B) To give the explicit knowledge about what is going to be taught. (Beas, et al, 2014).

- It is important, is to describe the actual intentionality of the evaluation, diagnostic, formative and summative; which focuses and make emphasis in the process formative evaluation. Here, there are a bunch details about the activities that should be done in advance; those are the followings: to identify the progress and setbacks of the students. Besides, to provide clear criteria to be applied and how it is going to be implemented the feedback of the process and certain tasks (Hattie & Timperley, 2007), those actions are not clearly specified within a planning. On the other hand, It is clear that, the development of skills must be worked through activities and tasks both either inside the classroom or outside it through practicing, with high perseverance and dedication, those terms of excellence were described by Thomas Alba Edison (cited by Borrero, 2008), and that must be worked with high level of complexity.
- Generally, some teachers do not consider lower skills inside the learning process itself, but, it is important to point out that, those are the starting points to advance in the development of higher skills



1.1 The Intentionality of the Evaluation.

The evaluation must be developed in all its fields of actions, it means, this should be applied according to the intention of the evaluation (diagnostic, formative and summative), including all moments and the internal agents (self-evaluation, co-evaluation and hetero-evaluation) that are involved in it (Sanmartí , 2007).

The diagnostic, formative, and summative evaluations are kinds of evaluation that allows us, to know what students can do in order to teach them what they need and the time they require for it.

1.1.1 The Diagnostic Evaluation

- It allows determining the initial state in which the student is about during the learning process, at this moment, the teacher can apply, questionnaires, checklist, assessment scales, or other evaluative procedures to establish the skills and previous knowledge that the student carries out.

1.1.2 The Formative Assessment.

- This phase of the evaluation is one of the most important, due to, it allows the interaction between teacher-student, in addition to it, teachers have the opportunity of monitoring the learning of didactic strategies in the process.

1.1.3 The Summative Evaluation

- It is the last evaluation that is applied to evaluate a final product, it allows to qualify the student, an evaluation which is required in most educational organizations; therefore, the teacher must use various evaluative procedures to qualify students at this stage. Activities can be evaluated through task performance techniques, as well as, open and closed items instruments or other procedures that the teacher deems appropriated, according to the learning goals and the achievement indicators that have been raised in their planning.



1.2 The Evaluation Agents

The purpose of applying the internal agents of evaluation - self-evaluation and co-evaluation- is that the student takes his own responsibility and to be part of the evaluation process. The recommended percentage to apply to self-evaluation and co-evaluation agents fluctuates between 5% and 10% respectively.

It is suitable to use these agents at the beginning of the formative evaluation, so, that the student becomes accustomed and be familiar with this task, he/she must take advance of that, this is another function that he/she should fulfill in the classroom in certain activities. Likewise, this opportunity is given to the student to regulate their own learning on the subject.

Afterwards, the student will be adapted and internalized this new function; the teacher can apply it with a percentage that should be summative.

1.2.1 Self evaluation

The student evaluates his own activities, in order to learn the asses in his learning process in generic terms. This type of evaluation is generally applied at the end of each activity, it means, some teachers apply it at the end of the teaching-learning process, but in the case of primary and secondary students, it is advisable to use it more permanently, at the end of small units, in order that students become aware of learning and how they have learned it.

1.2.2. Co-evaluation

It is a mutual or joint evaluation of an activity carried out among several students. The main goal, is to improve one's learning gradually. Furthermore, they become aware of both individual and group progress and problems.

1.2.3 Heteroevaluation

It consists of the evaluation that one person performs on another one, in terms of their work, performance; specifically it is the one that the teacher implements to the student.



1.4 Higher Habilities

Higher thinking is one that encompasses skills such as: analyze, synthesize, evaluate, create, abstract, among others (Murray, 2014), that is to say, at this level a student must have consolidated lower skills (González-Murillo et al. ., 2017; Prieto-Parra et al, 2020), he tests himself, his ability to solve problems, creativity and achieve effective critical thinking and, above all, manage to combine new information and the knowledge stored, according to López & Whittington (2014) .

One of the difficulties found in the learning results of curricular activities is the lack of higher taxonomies, which usually reach the application level, according to González-Murillo, Cárdenas-Galindo & Arellano-González (2017), they point out, in their writings of an intermediate level, and is "to use a procedure in a given situation", therefore, they do not generate situations that cause a creation in the student.

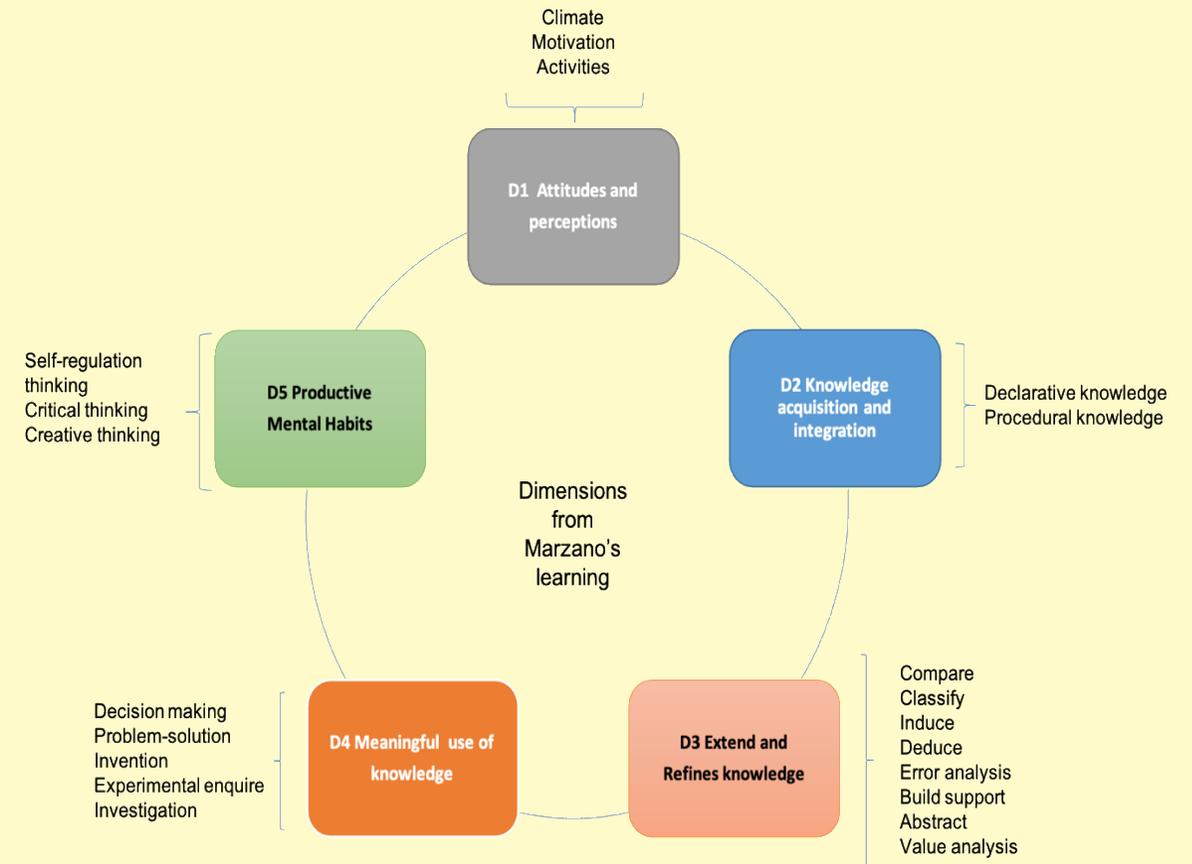


Figure 1. Dimensions from Marzano´s perspective.

Source: Calvo (2014)



2.1 Design

The design is descriptive, so, the results of four investigations that deal with higher thinking, skills are described..

2.3. Procedure

Secondary data used as a source of information regarding the evaluation methodology. Secondary data analysis is the analysis of data that was collected for a different initial purpose, being an alternative when you do not have much time and resources (Johnston, 2017).

The selection was intentional about the premises to develop skills, authors such as: Murillo, Galindo and González (2017); Herrera, Valdivia, Alonso & Zagalaz (2018); Roys & Pérez, (2018); Bonilla & Díaz (2018) and Aravena-Gaete, Campos-Soto Rodríguez-Jiménez (2020). The procedure was to analyze the results of studies on effective actions to generate higher thinking skills, in order to contrast the results of the investigations.



3. Results

Table 2. Research results

Investigation	Authors /year	Results
Development of higher thinking skills, through performance activities	González-Murillo, Cárdenas-Galindo & Arellano-González (2017)	Actividades formativas Retroalimentación
Metacognition in Second Language Learning: Strategies, Instruments and Assessment	Bonilla & Díaz (2018)	Metacognition Metacognitive strategies Monitoring
Metacognition and autonomous learning in higher Education	Herrera, Valdivia, Alonso & Zagalaz (2018)	Metacognition
Meaningful learning strategies in higher education students and their association with academic achievement	Roys & Pérez, (2018)	Planning, control and self-regulation strategies
Learning Strategies at a Higher Taxonomic Level in Primary Education Students in the Digital Age	Aravena-Gaete, Campos-Soto & Rodríguez-Jiménez (2020)	Simple and complex strategies

4. Conclusions

- It is determined that formative evaluation and feedback are effective actions to generate higher taxonomies in students, however, these variables must be complemented by varied and innovative strategies together with the explicit teaching of the contents, otherwise, by themselves, they cannot generate higher thinking.
- On the contrary, metacognition is an action that must be integrated into the teaching and learning process, so, the student should be aware of how he advances and retreats in his own thinking.
- The teacher is one of the responsible agents who must plan the didactic strategies, the level of lower and higher skills that they must achieve in the students within their learning results declared in their curricular activity, in addition to specifying when they will implement the evaluation formative, feedback even declaring the metacognitive process.