

Fostering Actions of Competence Broadening Higher Order Thinking Skills as a Basis for Standardized Test-Taking

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This article reports on a research project that aimed at selecting actions of competence and how these can be fostered to broaden higher order thinking skills as a basis to achieve a high performance in standardized test taking by the senior students of a private high school in Bogotá. The research was done under action research following the model of Cohen & Manion (1980), in which a sequence of steps was carried out to identify the problem at hand that concerns the pedagogical labor of arriving at conclusions that lead into pedagogical implications and thoughts on future continuation with the topic.

Key words: Standardized testing, higher order thinking skills, critical thinking

El presente artículo describe una investigación que apuntó a determinar cuales acciones de competencia y así mismo cómo fomentarlas para ampliar las operaciones mentales de alto orden para alcanzar un óptimo desempeño en la toma de pruebas estandarizadas de los alumnos de decimoprimer grado de un colegio privado de Bogotá. La investigación se hizo bajo el método investigación-acción siguiendo el modelo de Cohen y Manion donde una secuencia de pasos se siguió para identificar el problema que es de incumbencia en la labor pedagógica diaria hasta llegar a las conclusiones elucidando implicaciones pedagógicas y la futura consideración para continuar en tan importante temática.

Palabras clave: Pruebas estandarizadas, habilidades mentales de alto orden, pensamiento crítico

Rationale

As many know Noam Chomsky introduced the term competence in his book *Aspects of the Theory of Syntax* (1965), in which he holds that human beings have an innate capacity for acquiring, using, and interpreting language, one that transcends any differences of culture or individual psychology meaning “across the spectrum of culture, gender, language, and ability levels” as well said by the

Board of Jewish Education of Greater New York [Bjeny] (2002). Since then, there have been different interpretations of the concept, but, fortunately it has been integrated in educational systems throughout the world. The latter led to the determination of three actions of competence on the order of interpretation, argumentation and proposition, which all human beings are expected to make use of in their actions, whether academic, work or everyday life. Precisely, as a teacher of English as a foreign language, it is of utmost importance to introduce, teach and demand these actions of competence from students in our area of knowledge not only as an inherent developmental activity in the educational process of students but to abide by the regulations of the Colombian educational system. As many people know, when the high school education process ends these actions are measured in the different areas of knowledge, including a foreign language, through standardized testing. In Colombia this type of testing is headed by the Instituto Colombiano para el Fomento de la Educación Superior (ICFES), meaning that there has to be a real theoretically-based development of the actions of competence in all our students to achieve high performance on this or any standardized test proposed by the Ministry or any other institution that demands from them.

Introduction

This research project had as its objective “selecting actions of competence and how these can be fostered, broadening higher order thinking skills as a basis for standardized test-taking in the classroom”. The research problem was confronted through action research and the methodology proposed by Cohen and Manion (1980) that contemplates the achievement of the goal by elaborating each of the steps of their model. In order to elucidate the research problem and its possible solution, I used a Student Questionnaire, a Teacher Questionnaire (that allowed gathering information in relation to the perceptions and conceptions they had concerning test-taking skills, developing those skills and standardized testing) and a Pilot Test (designed by the ICFES institution for its New ICFES Proposal in 2005; it was designated to be the Entry Test as it followed all the parameters needed as they were found during the theoretical study). The Entry Test showed that there was a necessity to intervene in the actions of competence through the higher order thinking skills by observable and measurable activities that exercised the mental operations as described by Feuerstein, Rand, Hoffman, and Miller (1980), and

Bloom (1984). Then, the implementation phase was done through designing lesson plans following the theoretical foundations and, at the same time, gathering data to show the coming along of the population through a designed instrument called Student Classwork Checklist; and, in order to save time, a group of 16 students was chosen at random (4 students from each group) and used to generalize the total students' population compiling data through a Teacher Observation Instrument; later an Exit was applied, this one being the same as the Entry as it was previously decided to have the capacity to measure results under the same conditions. The test finally manifested results that proved that those actions of competence could be fostered to broaden higher order thinking skills and students could be assured of higher performances in standardized tests.

Research Objectives

General Objective

To choose actions of competence and how these can be fostered to broaden higher order thinking skills as a basis for standardized test-taking in the classroom.

Specific Objectives

1. To find out what actions of competence are required to broaden higher order thinking skills as a basis for standardized test-taking.
2. To describe the actions of competences that broaden higher order thinking skills required in standardized test-taking.
3. To determine how these actions of competence broadening higher order thinking skills can be fostered in the classroom.

Setting and Population

The research project was carried out at a private intensive English school where, depending on the grade, students take from 6 to 10 hours of English per week. The target population was eleventh graders, 17 students divided into 4 groups, who would confront standardized testing within the near future beginning with the national ICFES examination as well as other tests required by national and international educational institutions.

Literature Review

To begin elucidating on how to approach the problem it was necessary to have the foundations of different theoreticians, authors and information from previous proposals dealing with the subject of how actions of competence would be fostered to broaden higher order thinking skills as a basis for standardized test-taking. It was shown that these bases need to be the following eight items:

1. Standardized Tests

Standardized Tests as defined by educational professionals at Sylvan Learning Centre (Sylvan Learning, n.d.) are large-scale tests that are administered to students and scored in the same manner. Students take the same test in the same conditions and, if possible, at the same time so that results can be attributed to student performance and not to differences in the test or the way it is given. Because of this, the results of standardized tests can be compared across schools and sections of any country. In the case of Colombian students, the ICFES institution is in charge of designing the test including the foreign language, which is our concern, and applying it and elaborating analysis of the gathered scores. In the first place, taking the test is of utmost importance as it is one of the requirements to graduate from high school. Second, students are admitted to colleges' undergraduate programmes based on their scores in private institutions, and this may be an item in the selection process of the public ones.

2. Critical Thinking

Critical Thinking can be described as the scientific method applied by ordinary people to the ordinary world. How?: a question is identified, a hypothesis formulated, relevant data sought and gathered, the hypothesis is logically tested and evaluated, and reliable conclusions are drawn from the result. It can be said that it is nothing more than scientific method used in everyday life rather than in specifically scientific disciplines or endeavors. As a result, any individual with an advanced degree in any university discipline has almost certainly learned the techniques of critical thinking, and it would be an obligation of the educator to teach these techniques to the younger generations. Through this research a conclusion was gathered and that is that life can be described as a sequence of problems that each individual must solve by oneself

and that critical thinking skills are nothing more than problem solving skills that result in reliable knowledge. In other words, critical thinking is the practice of processing information in the most skillful, accurate, and rigorous manner possible; in such a way that it leads to the most reliable, logical, and trustworthy conclusions, upon which one can make responsible decisions about one's life, behavior, and actions with full knowledge of assumptions and consequences of those decisions to propitiate better earning a living, achieving success in life, solving life's problems better and be reconciled to existence, morality and the universe.

3. Higher Order Thinking Skills

“Everyday thinking, like ordinary walking, is a natural performance we all pick up. But good thinking, like running the 100-yard dash, is a technical performance... Sprinters have to be taught how to run the 100-yard dash; good thinking is the result of good teaching, which includes much practice.” That was said by David Perkins of Howard University (as cited in Louisiana Teacher Assistance and Assessment Program, 1996, p. 13). I do agree with him because through the years of teaching one can see that there is a necessity to teach our students how to use the appropriate methodologies fostering thinking and allowing them to exercise the thinking skills. While reading different literature regarding Higher Order Thinking, I found that the description made by great scholars after careful study at the Southeastern Louisiana University (Louisiana Teacher Assistance and Assessment Program, 1996), Higher Order Thinking turned out to be the one I committed myself to. Now, let us find out why it is important to develop higher order thinking skills.

1. In our increasingly complex and specialized society, it is becoming even more imperative that individuals are capable of thinking divergently and creatively. It is also important that individuals see the relationships between seemingly diverse concepts.
2. Current brain research indicates that there are neurological factors accounting for learning and thinking differences among individuals. So, teachers and learners must recognize the characteristics inherent to each of the individuals.
3. The ability to construct lessons which include higher order questions is part of what all educators must do in order to provide student involvement by encouraging higher order thinking.

We must consider the different types of thinking leading to higher order thinking and its definition as proposed by the mentioned document as concepts related to the theoretical background needed to gain insight on the objective at hand.

1. **Critical Thinking:** This is convergent thinking. It assesses the worth and validity of something existent. It involves precise, persistent, objective analysis.
2. **Creative Thinking:** This is divergent thinking. It generates something new or different. It involves having a different idea that works as well or better than previous ideas.
3. **Convergent Thinking:** This type of thinking is a cognitive processing of information around a common point, an attempt to bring thoughts from different directions into a union or common conclusion.
4. **Divergent Thinking:** This type of thinking starts from a common point and moves outward into a variety of perspectives.
5. **Inductive Thinking:** This is the process of reasoning from parts to the whole, from examples to generalizations.
6. **Deductive Thinking:** This type of reasoning moves from the whole to its parts, from generalizations to underlying concepts to examples.
7. **Closed questions:** These are questions asked by teachers that have predictable responses. Closed questions almost always require factual recall rather than higher levels of thinking.
8. **Open questions:** These are questions that do not have predictable answers. Open questions almost always require higher order thinking.

Then, the following are some pointers to exercise in the classroom to foster higher order thinking, also propped by the same university:

1. Set up a classroom environment which is conducive to high-level thinking by observing the following:
 - a. using multi-level materials
 - b. flexible grouping
 - c. accepting and celebrating diversity
 - d. proposing print reach materials
 - e. marking high expectations
 - f. the teacher becomes co-learner and so it is verbalized
 - g. nurturing risk-taking.

2. Engage students in activities which foster high-level thinking by observing the following:
 - a. proposing collaborative group activities in which students can communicate with each other in a variety of ways
 - b. proposing problem-solving activities that require more than routine calculations
 - c. proposing open-ended activities with more than one “right” answer
 - d. proposing activities which accommodate multiple intelligences
 - e. activities in which both genders participate freely
3. Construct questions that call for high-level thinking by doing the following:
 - a. allowing the learners to answer the probing question with enough time
 - b. using a variety of assessment methods that match teaching strategies

Keeping in mind that fostering higher order thinking is a key element in this research project, we realized the information given above was quite useful and was applied in the classroom in the intervention stages.

4. Socratic Questioning

While searching for pertinent theory I came across the Socratic Questioning (Straker, n.d.) and realized that without exercising this concept there could not be total encouragement of higher order thinking as its overall purpose is to challenge accuracy and completeness of thinking in a way that acts to move people towards their ultimate goal. Although this sort of questioning is used in the classroom on a daily basis, sometimes we do not see its importance in students’ cognitive development. There are clarification questions; questions that probe assumptions, questions that probe reasons and consequences; questions about viewpoints or perspectives; questions that probe implications and consequences; and questions about the question. The following are some examples:

What do you mean by?

Could you give me an example?

What do you think is the main issue here?

Why do you say that?

What are you assuming?

Is it always the case?

What is your opinion in that respect?

How do you know?

What is an alternative?

Do you agree with...?

What difference does that make?

How does that apply in this case?

5. *Critical Reading*

While reading and understanding critical thinking and higher order thinking skills the term critical reading came about and it would be only natural that these go hand in hand; therefore, it became necessary to learn more of the topic and the following is what I found to be the most interesting information to be used by the teachers of today. In short, Paul (1993, as cited in Surjosuseno & Watts, 1999) considers critical reading to be a process by which readers relate the author's ideas or information to their own experiences or problems using a process which includes analysis, synthesis and evaluation. As can be read, these precepts agreed with the task at hand, which was to foster actions of competence broadening higher order thinking skills as a basis for standardized test-taking where the purpose was to lead the student into facing reading as it was the way he or she would confront this type of examination; more specifically, the standardized test proposed by the Educational Law of Colombia, this being the ICFES test.

Then, it became much more interesting to find out that Paul had already looked into this matter and designed a useful comparison or application chart of Bloom's Taxonomy (1984) to guide reading and the use of questioning in EFL classes (following the thoughts so far) (See Table 1) .

6. *Bloom's Taxonomy*

As stated before, while reading about the topics described before it became apparent that there was a necessity for deepening the knowledge of what Benjamin Bloom (1984) had proposed in his taxonomy, I learned that in 1956 Bloom headed a group of educational psychologists in classifying levels of intellectual behavior within learning environments which were named Bloom's Taxonomy. This hierarchy identifies six levels within the cognitive domain. At the lowest level is simple recall or recognition of facts. The categories represent increasing complexity and abstraction, with the highest level being evaluation. The taxonomy provides a useful structure in which to categorize test questions

Table 1. The use of Bloom’s Taxonomy and its application in reading and questioning in EFL classes.

Definition	Application
<p>Knowledge Learners are expected to store in their mind information for later recall.</p>	<p>The knowledge question is often used during or after reading a passage to encourage learners in an EFL class to recall the content of the passage.</p>
<p>Comprehension In EFL classes, there are three types of comprehension behavior: (a) translation (learners translate from the second language to the first language); (b) interpretation (reorder ideas into a new configuration); and (c) extrapolation (making predictions based on what is given in a passage as opposed to abstraction, which is derived from other experiences).</p>	<p>Critical reading questions which require students to translate a passage are not relevant in EFL classes since both teachers and learners use the target language. However, EFL learners are required to interpret and extrapolate meaning during and after reading.</p>
<p>Application Applying a language rule, theory, method or process to a problem or situation and referring to the learners’ ability to use the learning materials in new and concrete situations.</p>	<p>A critical reading teacher in EFL classes will ask application questions about the topic before, during and after reading a passage. Questioning before a reading encourages students to anticipate what is possible; questioning during the reading directs learners to focus on the function of the topic; and questioning after the reading directs learners to apply the concepts in a new context.</p>
<p>Analysis Analysis refers to the ability to break down a passage into its component parts so that its organizational structure may be understood.</p>	<p>In critical reading for an EFL class, analysis questions can be used during and after reading activities to encourage learners to understand the content and structure of the given passage.</p>
<p>Synthesis Synthesis encourages students to create something new and to rely on original and creative thinking. Students may make predictions and solve problems and make a variety of creative answers.</p>	<p>Synthesis activities in an EFL class can include (a) solving problems which are described in the passage; or (b) communicating with the author in the target language.</p>

Definition	Application
<p>Evaluation</p> <p>Evaluation is concerned with the ability to judge the value of material, the solution to a problem or the facts about particular cultures.</p>	<p>Critical reading in an EFL class may use evaluation as a means of focusing on learner's personal judgments derived from their existing schemata.</p>

since teachers and students will characteristically ask questions within particular levels, and if the learner can determine the levels of questions that will appear on the tests, the learner will be able to study using appropriate strategies. Table 2 indicates what activities are appropriate for each of the levels and these activities should be matched by a given, appropriate process verb by triggering words to keep the learning object in mind.

7. *Reuven Feuerstein and Structural Cognitive Modifiability*

I had been introduced to Feuerstein and his Structural Cognitive Modifiability through different educational specialists while discussing methods that would guide students to higher performance, not only in the academic context but as a way of life. After some time I realized that Bloom and Feuerstein had to be put together. On account of this, I ran across a document written by Prieto (1989) about Reuven Feuerstein's work in which he explains what competences are, their purposes and the mental operations inherent to each translated into performances, meaning, and observable behavior; and within the document Prieto socializes an application to Foreign Language Learning. At last the pieces of the puzzle were coming together.

Now, a recapitulation of the theory behind them will be described. They consider the following parameters as starting points:

1. Cognitive development means the successive acquisition of logical structures, each time more complex, that underlie situations in which the subject is able to solve as s/he grows.
2. Feuerstein (as cited in Prieto, 1989) considers that in order to learn or to solve problems, a person must be able to select, gather and take in appropriate information (input). The input needs to be processed and used in some way (elaboration). Finally, the person will need to express a message or her/his findings appropriately (output).

Table 2. Activities for each level of Bloom’s taxonomy.

Level	Process verbs	Student activities	Instructor activities	Student assessment
Knowledge: remembering previously learned materials.	cite, define, identify, label, list, match, name, quote, recite, reproduce, state	reads materials, listens to lectures, watches videos, takes notes	directs, tells, shows	name, list, define, answer Yes or No questions
Comprehension: ability to grasp the meaning of material.	alter, change, convert, depict, describe, discover, explain, give main idea, illustrate, interpret, manage, paraphrase, relate, rephrase, compare, restate, locate	explains idea in written or oral form, translates information into their own words, gives an example, interprets what is said	demonstrates, listens, questions, compares, contrasts, and examines information	give an example, compare, contrast, justify why they say something, give an idea in their own words, respond to “What caused this?” or “Why did you say that?”
Application: ability to use abstractions in new and concrete situations.	apply, classify, compute, demonstrate, direct, discover, employ, evidence, manage, manifest, predict, prepare, present, relate, show, solve,	takes knowledge learned at above levels and applies to a new situation, solves problems, recognizes problems and develops tools to solve them	shows, facilitates, observes, and criticizes	solve, “How can I find an answer to...?”; apply the generalization to ...
Analysis: ability to break down material into parts so that its organizational structure may be understood.	analyze, ascertain, associate, conclude, designate, determine, diagnose, diagram, differentiate, discriminate, dissect, distinguish, divide, examine, find, infer	analyzes and takes apart, explains each of the parts, discusses, uncovers, lists and dissects.	probes, guides, observes, and acts as a resource	answer questions like “What reason do I give for this conclusion?”, “Does the evidence support the conclusion?” “What facts support the conclusion?”
Synthesis: ability to put parts together to form a new whole.	combine, compile, compose, conceive, create, design, develop, devise, expand, extend,	puts parts together into a unified whole, creates plans and hypotheses for finding solutions, uses original creative thinking	reflects, extends, analyses, and evaluates	create a plan, develop a model, combine these parts

Level	Process verbs	Student activities	Instructor activities	Student assessment
Evaluation: ability to judge the value of material for a given purpose	assess, compare, conclude, contrast, criticize, critique, deduce, evaluate, judge, weigh	makes a value judgment based on considerations, writes editorials, discusses or debates	clarifies, accepts, harmonizes, guides	demonstrate making a judgment, evaluate an idea using some criteria or standard

Now, let's consider the description made of the phases which are the foundation of this research project:

Input phase

This phase is about receiving stimuli through the receptor or the organic system and to be reordered in the brain lobes, making use of perception which is the way an individual obtains knowledge from his environment to achieve adaptative behavior in order to extract or deduce information. These two mechanisms are influenced through the physical context, the temporal content, the familiarity of the stimuli and conceptual categories that underlie in the individual. Perception is translated as the motor-perceptive abilities. These are divided as follows:

- **Visual-motor coordination** or relation among the brain, the optic system and the motor system.
- **Audio-motor coordination** or relation among the brain, audio system and the motor system.
- **Motor coordination** included the development of the fine and gross motor functions.

These co-ordinations are expressed through conditions such as size, shape, brightness concordance; figure, background figure organization; and manual coordination.

Elaboration phase

Once the information is codified and recorded in the memory, the mechanisms that allow the way of storing are the Mental Operations as developed by Feuerstein, Rand, and Hoffman (1979) in *The Dynamic Assessment of Retarded*

Performance: The Learning Potential Assessment Device in which they say that these are a set of organized, internalized and coordinated actions in function of which information is elaborated. Once these processes take place, humans acquire competency, which is being able “to do in a positive context” meaning the set of actions that a student performs (carries out) in a given context and that meet the specific requirements of the context itself as defined in the Nuevo Examen de Estado, ICFES, in 1999. In other words, a competency is a set of cognitive and conceptual processes that a student uses in the application or solution of a given situation. Competences are circumscribed in the following action types: Interpretative, Argumentative and Propositive that the student puts into use in each discipline context that make reference to the set of concepts, theories, epistemological history, inside and articulating axis, rules of action and specific procedures that belong to a given area and are translated into performances, meaning, observable behavior given by the mental operations. The first two actions or level of competency takes place in the phase of elaboration.

Output phase

Once organization and storage has been achieved and the significance of the information in the phase of elaboration agreed upon, the mechanism of the memory allows the retrieval of the information to will in the phase of output, which means the use of the same to guide the results of learning and to produce answers according to the problematic situations that arise. During this phase the student will apply the constructed knowledge in particular contexts of the different disciplines, which means that he can intervene from his knowledge to the solution of a cognitive conflict. Those notions that express the performance of the student and his interaction with socio cultural contexts and specific disciplines become more observable during this phase, establishing an essential tie with the language as this is conceived as an experience through which ways are determined, in which man relates and constructs a reality. Table 3 describes each of the competences with the mental operations inherent to them and what the student is able to do.

Again, I considered the latter to be the foundations on which to support what was intended to be done, taking into account that this line of thought was followed by the New ICFES Proposal as manifested in the informational literature given to the

Table 3. Competences and mental operations inherent to.

Elaboration		Output
Interpretative	Argumentative	Propositive
<p>Actions oriented to explain the WHAT and the HOW of a chunk of knowledge. These point to finding the meaning and significance of a proposition, a problem, a graphic, map, scheme, pro and con arguments of a theory, among others. It is based on the local and global reconstruction of a text.</p> <p>Student is able to Systematically explore a learning situation rather than act impulsively. Develop an increasingly accurate understanding of words and concepts. Position her/himself in time and space. Gather information from more than one source.</p>	<p>Actions oriented to explain the WHY or WHAT FOR of a theoretical issue. It involves all those reasons that have as final result to justify a statement and that are expressed in the explanation of those reasons of a proposition in the articulation of concepts and theories with the purpose of justifying a statement, a mathematical demonstration, in the connection of partial reconstructions of a text that support the global reconstruction, in the organization of premises to support a conclusion, in the establishment of casual relations, among others.</p> <p>Student is able to Define the nature of any problem with which s/he is faced. Draw upon information stored in the brain. Select relevant cues and ignore irrelevant information. Make relevant comparisons, relate objects and vents to previous and anticipated situations. Summarise all the relevant information at her/his disposal. Construct a logical plan of action.</p>	<p>Generation of actions of hypothesis, problem solution, construction of possible worlds, establishing regularities and generalizations, proposition of solution alternatives to social conflicts, elaboration of alternatives of explanation to a situation, a set of situations, or a confrontation of given perspectives in a text, among other actions.</p> <p>Student is able to Express her/his thoughts and feelings in a controlled and planned way. Employ words and concepts accurately in order to do so. Develop an awareness of other people's reactions in order to communicate effectively.</p>

Elaboration		Output
Interpretative	Argumentative	Propositive
Mental operations	Mental operations	Mental operations
<p>Identification: Operation through which a reality is recognized due to its characteristics in real or virtual form.</p>	<p>Analysis: A process that implies the separation of articulation parts of whole keeping in mind its qualities, functions, uses, relations, structures and operations.</p>	<p>Analogical Reasoning: Operation through which given three elements of a proposition, the fourth one is determined by deduction of similarities.</p>
<p>Differentiation: Operation through which something is recognized because of its characteristics, making a distinction of which are essential and which are irrelevant, parting from the particular dependent situation.</p>	<p>Synthesis: A process that allows integration of elements, relations, properties or parts to form entities or new and significant wholes.</p>	<p>Hypothetical Reasoning: Mental capacity to carry out inferences and prediction of events from what is known presently and the laws that relate them.</p>
<p>Mental Representation: Internalization of the characteristics of an object of knowledge, this being concrete or abstract. It is the representation of the essential traits that allow definition of an object as is.</p>	<p>Logical Inference: The capacity to carry out deductions and create new information given the perceived data.</p>	<p>Transitive Reasoning: It consists of ordering, comparing and transcribing a relation until a conclusion is reached.</p>
<p>Mental Transformation: Cognitive activity through which the subject can modify or combine the characteristics of an object or some objects to produce representation of higher degree of abstraction or complexity.</p>		<p>Syllogistic Reasoning: Mental operations that allow reaching conclusions through projection and interpretation of relations among two premises.</p>
<p>Comparison: Basic process that constitutes the previous step to establishing relation of similarities or differences between or among entities.</p>		<p>Divergent and Convergent Thinking: Cognitive activity that allows establishing new parameters through which can be detected differences among similarities.</p>

Elaboration		Output
Interpretative	Argumentative	Propositive
<p>Classification: Mental act that groups items into categories on the basis of attributes.</p>		<p>Conceptualization: Mental operation that parts from abstract to a denomination; it groups events, objects or situations with essential or common characteristics called defining properties.</p>
<p>Codification: Establishment of symbols or interpretation of symbols that extends concepts, avoiding ambiguity even though its abstraction increases.</p>		
<p>Decoding: Ability to decide how to translate verbal or written instructions to motor acts and to decipher some message or symbol.</p>		
<p>Virtual Relations Projection: Perception of external stimuli in organized unities that will project again under the same stimuli.</p>		

public; and, also followed by the school of interest as one of its pillars in their pedagogical approaches.

8. New ICFES Proposal

As we are all aware and as has been mentioned throughout this document, which aims at fostering actions of competence broadening higher order thinking skills as a contribution to obtaining better results on standardized tests, and for the Colombian senior students it means the ICFES test demanded by the Law of Education, the following items reflect 3 of the 5 main purposes that the ICFES has had since its beginnings in 1968 and are applicable to our concern:

1. To keep providing criteria for the enrollment in higher education: actions competences are tested in each of the required areas and give information of a descriptive type to support the admissions processes.
2. To give students information that will contribute to their selection of a career option: their exam results about the actions competences in the tested areas are an alternative to self-evaluation and are included as criteria to select a vocational or professional option.
3. To serve as criterion to support and assign educational benefits as scholarships and others: the test results can be kept in mind to offer incentives to the best high school graduates of the country, and to offer other educational benefits that can be implemented later on.

Basically, the new proposal deals with three determinant aspects geared to clarify what it pretends to test: 1. Language competences (Bachman's proposal, 1990), 2. Actions of competence (Feuerstein's proposal, as cited in Prieto, 1989) and 3. Level of language. Those three aspects are considered to fall under the curricula axis of communication; culture and communities; and the interdisciplinary connection. That is, pretending to test the student through interdisciplinary contents known to her or him and proposing contexts as a way to measure recognition of her/his own environment, culture and knowledge of others to be crossed with other environments and cultures; and a tool through which s/he can demonstrate use and usage of the foreign language. Table 4 is the validation of the three determinant aspects.

Actions of competence (Feuerstein's proposal)

The ICFES takes as a competence "knowing how to do in a given context"; in other words, the action a student carries out in the context of a discipline of knowledge or in a problematic situation. The actions considered are interpretation, argumentation and proposition as fundamental bases in the participation and construction of society.

Levels of language

The New ICFES proposal recognizes three levels of language and these go hand in hand with the actions of the competences. The following is a description of how

these levels must be interpreted as stipulated in the guidelines of the test according to the hierarchy of the competences:

1. Level A: Literal and explicit reading, recognition of rhetorical procedures.
2. Level B: Inferential reading, hierarchism of propositions, establishment of solution alternatives.
3. Level C: Inter-textual reading, establishment of theses and arguments, evaluation of solution alternatives, intentions and formalities (See Table 5).

Table 4. Bachman’s explanation of communicative competence (1990).

Language competences	
<p>Lyle Bachman’s proposal (1990) in relation to the communicative competence in a second language quotes Moby (1978), in which he included “linguistic encoding” (the realization of language use as verbal forms), “socio-cultural orientation” (contextual appropriacy and communicative needs).</p>	
Organizational	Pragmatic
<p>All rules and systems that dictate what we can do with forms of language, whether they be sentence-level rules (grammar) or rules that govern how we “string” sentences together (discourse). This competence is divided into two parts: Grammatical Competence, which deals with performance in vocabulary, morphology, syntax and phonology; and Textual Competence, which deals with the recognition and application of cohesion in a text and the recognition and application of rhetorical organization.</p>	<p>Functional aspects of language: Illocutionary Competence pertaining to sending and receiving intended meanings; and Sociolinguistic aspects which deal with such considerations as politeness, formality, metaphor, register, and culturally related aspect of language.</p>

Finally, it can be said that throughout the review of literature pertinent to the research problem at hand of how to “foster actions of competence broadening higher order thinking skills as a basis for standardized test-taking”, it was necessary to begin with standardized testing, higher order thinking skills; Feuerstein, in his interpretation of the action of competence (as cited in Prieto, 1989), confirms that those must be inherent to any individual. Then, Bloom’s Taxonomy (1984) provides the elements to exercise thinking skills and critical reading to achieve critical thinking,

Table 5. Contextualization of the actions and level of language.

Interpretation	<ul style="list-style-type: none"> • Actions oriented to find the meaning of a text, a proposition, a problem, a graphic, a map, a scheme, arguments for and against a theory or a proposal, among others; that is to say, based on the local or global reconstruction of a text. 	
	Level	Meaning
	A	The student carries out literal reading, meaning, interprets explicit information from a text.
	B	The students carries out inferential reading, meaning, establishes relationships among parts of the text to elaborate inferences about the non explicit information in a text.
C	The student carries out inter-textual reading, meaning, elaborates relations of the content with other reading texts.	
Argumentation	<ul style="list-style-type: none"> • Actions that have as final aim to give reasons of a statement and that are expressed in the why of a proposition, in the articulation of concept and theories, in mathematical demonstrations, in the connection of partial reconstructions of a text that are the bases for global reconstruction; in the organization of premises to support a conclusion, in the establishment of causal relations, among others. 	
	Level	Meaning
	A	The student recognizes the rhetorical procedures presented by the text; for example, distinguishes a definition from an example, an analogy or comparison from an anecdote.
	B	The student elaborates hierarchies of the propositions, meaning, differentiates the thesis statement from the arguments.
C	The student elaborates relationships among the propositions presented by a text (thesis and arguments) and infers the author's intentions.	

Proposition	<ul style="list-style-type: none"> It makes reference to the actions of generation of hypothesis, problem solution, construction of possible worlds, establishing regularities and generalizations, proposition of solution alternatives to social conflicts, elaboration of alternatives of explanation to a situation, a set of situations, or a confrontation of given perspectives in a text, among other actions. 	
	Level	Meaning
	A	The student identifies alternatives of solution to proposed problems within a text.
	B	The student elaborates relationships among the alternatives of solution within the context, the intentions of the author and the level of formality of the discourse to understand the problem as a whole.
C	The student evaluates the alternatives of solution in the light of the context, the intentions, and the levels of formality to propose adequate solutions to a problem.	

as written by different theoreticians. Individuals must elaborate these to solve problems in all realms of life. Feuerstein, then, supports each action of competence by observable mental operations, which provided a basis for this research project to confront the alternatives of solution to the research problem.

In order to provide a solution to the research problem, a comparative chart was designed, which is no more than putting together Feuerstein’s proposal, Bloom’s taxonomy and the ICFES theoretical foundations for foreign language testing in its new proposal. This was the basis to create intervening lesson plans (See Table 6).

Research Design

Description of the Research Problem

First came determining the conceptions and perceptions of the students themselves and the teaching staff in regard to testing, standardized testing and what was needed to achieve high performances. Second, a careful study of proposals made by different

Table 6. Comparative Chart: Feuerstein’s proposal, Bloom’s taxonomy and the ICfes theoretical foundations for foreign language testing.

Feuerstein	Bloom’s taxonomy	Icfes proposal
<p>Interpretation Identification, differentiation, mental representation, comparison, classification, coding, decoding, virtual relations, projection</p>	<p>Knowledge Define, fill in the blank, identify, label, list, locate, match, memorize, name, recall, spell, state, tell, underline</p> <p>Comprehension Convert, describe, explain, interpret, paraphrase, put in order, restate, retell in own words, rewrite, summarize, trace, translate</p>	<p>Interpretation</p>
<p>Argumentation Analysis, synthesis, logical inference</p>	<p>Application Apply, compute, conclude, construct, demonstrate, determine, draw, find out, exemplify, solve, use, state rule</p> <p>Analysis Analyze, categorize, classify, compare, contrast, debate, deduct, diagnose, diagram, differentiate, infer, specify</p> <p>Synthesis Change, combine, compose, create, design, formulate, generate, invent, predict, pretend, rearrange, revise, visualize, write, produce, plan</p>	<p>Argumentation</p>
<p>Proposition Analogical reasoning, hypothetical reasoning, transitive reasoning, syllogistic reasoning, divergent-convergent thinking, conceptualization</p>	<p>Evaluation Appraise, choose, compare, conclude, decide, defend, evaluate, opine, judge, justify, prioritize, rank, select, support, value</p>	<p>Proposition</p>

theoreticians as described above was carried out. Third, analysis of these proposals in relation to the needs leading to the problem to be solved itself was undertaken. Fourth, in order to foster actions of competence to broaden higher order thinking skills as a basis for standardized test-taking, the agenda to follow was divided into the following stages: an entry test was chosen; the application of the entry test took place; results were obtained and the data analyzed; the data demonstrated that there was a real problem as it showed that there was a necessity to intervene in language competences and the actions of competence to ascertain better performance on future situations of standardized test-taking faced by our students beginning with the ICFES examination.

Research Question

Main question

How can actions of competence be fostered to broaden higher order thinking skills as a basis for standardized test-taking in the classroom?

Sub-questions

1. What actions of competence are required to broaden higher order thinking skills as a basis for standardized test-taking?
2. How can these required actions of competence that broaden higher order thinking skills for standardized test-taking be described and implemented?
3. How can these actions of competence be fostered to broaden higher order thinking skills as a basis for standardized test-taking in the classroom?

Research Methodology and Model Applied

This investigation needed to use the Action–Research methodology because the inherent mini-cycles allowed the proposal to come through. To carry out this investigation the model offered by Cohen and Manion (1980) was chosen as it provided the steps needed to acquire specific knowledge for the specific problem in the specific situation.

Research Procedure

The following steps were carried out:

Student Questionnaire

It was applied to 95 students from tenth grade who would go on to eleventh grade. The results enlightened the researchers as their perceptions and conceptions of standardized testing in relation to their competences and performance were gathered and it showed that they had a great concern for future performances.

Teacher Questionnaire

It was applied to the teaching staff with the aim of obtaining their perceptions and conceptions about standardized testing and its relation to mental abilities and performance. It gave supporting evidence on the necessity to foster actions of competences (enhancing language competences) by the utilization of mental operations through the types of exercises they already worked with their students.

Entry Test

1. The ICFES pilot test approved by the ICFES institution was applied to 117 eleventh graders.
2. This decision was supported by members of the ICFES School for the Foreign Language Branch.
3. The entry test was applied.
4. The results were tabulated and considered according to the ICFES specifications.

Data Analysis

Definition of Cases

The test was categorized following the parameter of the ICFES institution in which the 45 questions were divided into 10 specific cases of performance according to Language Competences: Organizational and Pragmatic; Actions of Competence: Interpretation, Argumentation; and, Levels of Language: A (literal), B (inferential), and C (inter-textual). This categorization allowed a route to begin the analysis of the results of the test, and, exactly a standardization of the measuring parameters, giving light into how to confront the research problem. Later, it was the determinant in the intervention phase. The following chart shows not only the cases but also the results

in terms of failures to clearly understand which cases (underlined) are to be intervened; specifically, those with a % failure above 25, understanding that all the cases were considered.

Table 7. Cases for intervention.

Case	Competence	Action	Level	A/Q.	% of F
1	organizational	interpretative	1	5	16.8
2	organizational	interpretative	2	14	<u>27.9</u>
3	pragmatic	interpretative	1	1	<u>27.3</u>
4	pragmatic	interpretative	2	1	1.7
5	pragmatic	argumentative	1	1	<u>47.0</u>
6	pragmatic	argumentative	2	4	18.4
7	pragmatic	argumentative	3	12	<u>25.2</u>
8	pragmatic	propositive	1	4	19.3
9	pragmatic	propositive	3	1	<u>88.0</u>
10	pragmatic	propositive	3	2	21.8

General Findings

The entry test showed that there were Actions of Competence in relation to Language Competences and Levels of Language which needed to be intervened with the purpose of obtaining not only better than average results in testing situations, but strengthening all dimensions of the learner through designed lesson plans that would propose the exercise or enhancement of different higher order thinking skills observable in the utilization of mental operations applied to the pertinent activities in accordance to the action of competence under a given language competence encircling a language level.

Implementation Phase

As was deduced from the student questionnaire, the teacher questionnaire, the literature review or theoretical framework, the entry test, and the analysis of the data resulting from the test, the decision was taken to design and apply lesson plans to

intervene the actions of competence broadening higher order thinking skills to be used in standardized test-taking. As shown in the previous statement for this implementation, it is completely relevant to design targeted and interesting lesson plans presenting the different activities that will enlighten students and, at the same time, foster those actions of competence. After the data analysis phase was concluded, always keeping in mind the theoretical framework, the decisions for designing the lesson plans were the following:

1. There were to be three lesson plans of 90 minutes each for the specific population (time was limited).
2. Each lesson plan was geared to intensify the usage of a given action of competence, but, the three actions would be considered as Bloom (1984) considers that there is not a specific stairway to higher order thinking. That means that the learner can go from knowledge to comprehension or to application and so on.
3. The action of competence was administered in the ascending order of complexity.
4. The teacher would provide the worksheets and any other material necessary to accomplish the objectives of each lesson.
5. At the end of the implementation of lessons there was a need for an exit test.
6. The exit test was the same as the entry test for the purpose of measuring the same categories or cases under the same conditions in order to allow for reliable exit data analysis.

Instructional Design of Lesson Plans Chart

Taking into account the time limit, three lesson plans were designed to follow the theoretical support given by Feuerstein (as cited in Prieto, 1989) in his description of Actions of Competence and Bloom's taxonomy (1984) as previously stated. Then, the topics of the lesson plans were thought of in the best interest of the students in relation to expanding their general culture which is an asset any individual must have, especially when confronting a standardized test designed for a large group of people where the proposed reading texts are only the pretexts to measure actions of competence. The topics also needed to be motivating to provide the correct class atmosphere when the applications would

take place. The topic also relied on the students' application of constructed knowledge, in particular contexts of the different disciplines, which means that these would range from knowledge to the solution of a cognitive conflict, which is not more than the connection of previous knowledge followed by new information to construct new knowledge (See Table 8).

Implementation Data Collection Procedures

Student checklist

A checklist was designed for each lesson plan with pertinent questions that provided the possibility of measuring the achievements on the Action of Competence by the student's performance in each of the proposed activities. Every member of the intervened population answered this instrument. Then, the 16 checklists per lesson were tabulated to get an overall achievement of the Actions of Competence following the same 10 cases.

Teacher observation instrument

A questionnaire was designed and applied that allowed the teacher to consign the achievements of the proposed activities to foster actions of competence of the random group (16 students). Each teacher observation instrument was designed with the pertinent questions in the order of the lesson plan and the student checklist. Then, the 16 teacher observation instruments were tabulated giving validity to the observation in terms of the overall achievements of the action of competence following the same 10 cases.

Exit Test Data Analysis

The exit test was applied as it had been established previously; the scores were tabulated as had been done for the entry test; and the following table shows the data and the analysis gleaned from it (See Table 9).

Comparative Analysis

Table 10 will show the resulting difference in terms of percentage (%) of failure as the element chosen to report the results as previously stated.

Table 8. Lesson plans chart.

Lesson No.	Lesson Name	Action of Competence	Feuerstein Description	Bloom's Taxonomy	Materials
1	Speaking Out on Homework Topic: homework and assignment time	Interpretation	Identification Mental representation Decoding Differentiation Mental transformation Synthesis Logical inference Transitive reasoning Divergent thinking	Recalling Interpretation Defining Filling in the blank Concluding Inferring Contrasting Planning Defending	Worksheet Board Realia
2	A New Shade of Green Topic: environmentalism vs. science and technology in today's world	Argumentation	Differentiation Decoding Mental Representation Synthesis Analysis Transitive reasoning Divergent/convergent thinking	Matching Inferring Deducing Interpreting Applying Classifying Determining factors Producing Evaluating Giving opinions	Worksheet Board Realia
3	Dying To Be Thin Topic: eating disorders	Proposition	Conceptualization Identification Differentiation Decoding Analysis Transitive reasoning Conceptualization Divergent/convergent thinking	Concluding Recalling Identifying Deducing Classifying Inferring Concluding Selecting Giving opinions	Worksheet Board Bond Paper Information Pamphlet Colors Paper Markers Realia

Table 9. Exit test scores.

Case	Competence	Action	Level	A. Q.	% of F
1	organizational	interpretative	1	5	18.3
2	organizational	interpretative	2	14	24.2
3	pragmatic	interpretative	1	1	9.4
4	pragmatic	interpretative	2	1	2.0
5	pragmatic	argumentative	1	1	38.5
6	pragmatic	argumentative	2	4	12.0
7	pragmatic	argumentative	3	12	20.5
8	pragmatic	propositive	1	4	19.8
9	pragmatic	propositive	3	1	69.8
10	pragmatic	propositive	3	2	17.2

Table 10. Comparison: The resulting difference in terms of percentage.

Case	Competence	Action	Level	Q	Entry % Failure	Exit % Failure	Better/Worse
1	Organizational	Interpretative	1	5	16.8	18.3	Worse
2	Organizational	Interpretative	2	14	27.9	24.2	Better
3	Pragmatic	Interpretative	1	1	27.3	9.4	Better
4	Pragmatic	Interpretative	2	1	1.7	2.0	Worse
5	Pragmatic	Argumentative	1	1	47.0	38.5	Better
6	Pragmatic	Argumentative	2	4	18.4	12.0	Better
7	Pragmatic	Argumentative	3	12	25.2	20.5	Better
8	Pragmatic	Propositive	1	4	19.3	19.8	
9	Pragmatic	Propositive	2	1	88.8	69.8	Better
10	Pragmatic	Propositive	3	2	21.8	17.2	Better

Conclusions

This research project and its stages answered the proposed question positively as it was found that actions of competence can be fostered to broaden higher order thinking skills as a basis for standardized test-taking in the classroom. It was confirmed that the competence of the actions of interpretation, argumentation and proposition is required in any learning process and in my concern at hand. As taken from Feuerstein (as cited in Prieto, 1989), competences are actions that the student puts into use in each discipline context that refer to the set of concepts, theories, epistemological history, inside and articulating axis, rules of action and specific procedures that belong to a given area and are translated into performances, meaning, observable behavior provided by the mental operations. While carrying out the implementation stage and the exit test, the students' performance and behavior were measured, thus, producing statistics transferable to a qualitative analysis that showed higher performance in standardized test taking.

Pedagogical Implications

Through the elaboration of this research project I concluded that this topic is immense and can and should be expanded by me and other members of the educational community in our country as a means of leading our students into higher competency, as I stated before, not only in the academic realm but in life itself. First, a thorough understanding of actions of competence must be done by studiously reading Paul, Feuerstein, Bloom and other scholars, so as to go to the classroom and do real work in developing critical thinking and reading which will turn into higher order thinking. Second, students must recall and retrieve prior knowledge and use it not only to expand their knowledge of English as a foreign language but also to expand their knowledge of any area and be able to transfer both to solve any problematic situation. Third, we must make use of the Socratic Questioning philosophy as its over-all purpose is to challenge accuracy and completeness of thinking in a way that acts to move people towards their ultimate goal; therefore, a better way to take students closer. And lastly, the members of the educational community need to know that designing tests to measure my proposal can be done.

Further Research

Based on the fact that actions of competence can be fostered to broaden higher order thinking skills as a basis for standardized test-taking in the classroom, it would be of great interest to explore deeper into the following:

1. Feuerstein's application of the actions of competence in the classroom as he makes real proposals that can be followed with some training and willingness.
2. How to design Lesson Plans to foster Action of Competence, keeping in mind the student's context.
3. Research more into how to construct Standardized Tests following what was described in this article and that would be pertinent to our students and, at the same time, serve the purpose of measuring their performance to take action where needed.

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