BLOOM'S TAXONOMY AND INTERROGTIVE SCHOLARLY DISCOURSE

Constantin-Georgel, Stoica[1]

Abstract:

Our communication is a linguistic and pragmatic analysis that we realize, having as support the interrogative structures extracted from alternative textbooks related to the subject "Romanian language and literature" at high school level. Our intention is to evaluate the effectiveness of the language used in these auxiliary materials and therefore, we analyze the raw material through a series of grids, watching the way in which the interrogtive scholarly discourse is used from a lexical, morphological and syntactic perspective, but especially a pragmatic one. Literature obliges us to take into account Bloom's Taxonomy, which proposes to conduct the educational process in stages considering the cognitive processes that are ordered themselves from simple to complex.

Keywords: *the interrogative structures, interrogtive scholarly discourse, Bloom's Taxonomy, education, pedagogical, pedagogy*

JEL Classification: *A2*

1. The interrogation study within the structure of didactic communication is meant to form a certain type of thinking and behaviour in society. The study aims to analyze the effectivness of interrogation in written didactic discourse especially since a great importance has been attached lately to studying the utterances that have to do with what we caoul call interogative logic, a new discipline, that has become a science, being called erotetics. We believe that the didactic discourse has been and will remain a point of interest for educators and researchers in the field of education, as well as language sciences, because achieving the educational desideratum depends on the way it is carried out. Thus, the didactic discourse is a very important factor in forming the new generation of students, and we, the people involved in this filed of activity, should make it as effective as possible.

Taking into account the fact that the didactic discourse is part of the communication concept, the starting point of this present study is that, even though there are numberless studies that deal with communication effectivness, the auxiliary tools used in education, especially the textbooks, do not always choose the best way to communicate, to make the contents accessible, to ease information transfer, and more importantly to support teching specific skills. Thus we feel that analysing the didactic discourse should be paid more attention, that is identifying and eliminating the mistake sources.

We should start from the idea that nowadays the young generation do not ask questions as musch as they should given the open society they live in or considering their age. This shortcoming is due to a deficient education and instruction in school, family or society. Experience has taught us that the first step towards knowledge, towards integrating into society and achieving our goals is by asking questions.

The study has as a starting point a set of educational texts, in order to be able to realise an interrogation typology and classification. The assumption we start with is that in our education and training system the closed questions (monosyllabic yes/no questions) and the identifying questions, which force students to a reproductive learning (Who/What is?) are in a greater number than the analyse-oriented open questions.

Considering all these, our suggestion is that the textbooks should be modified in such a manner to help the students develop their ability to ask and answer questions, make associations and interdisciplinary connections, make speculations, using their own logic and inventivity. The central idea is far more important than the logic and linguistic purpose of this study; the citizen of tomorow should be a person who knows how to ask a question and expect a correct answer.

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[1] PhD at „Ovidius" University of Constanta, constantingeorgel_stoica@yahoo.com

We believe that this study is very important because it aims at a fild almost unexplored and the results-well disseminated- could greatly contribute to an enhancement of the teaching techiques of the young generation. We also think that the results of this study would be of a great interest for all the parties involved in the teaching process: the teachers, the parents, those in charge with the formative system at a national and international level. This study addresses the problem of interogation not only from a didactic point of view, but also from a linguistic one, so its finalities are of importance in the field of both didactics and applied linguistics.

2. Bloom`s taxonomy (Bloom, 1956) is probalby best known to teachers, as well as wanna-be teachers, because since 1956 when it was published, until today, psychopedagogy and didactics relate to it, even though since the 90` Lorin Anderson one of Bloom`s students has been of the opinion that it should be revised.

As we all know, Bloom issued the theory according to which the learning process should be progressive establishing seven cognitive stages: a). *knowledge* (getting into contact with information); b). *comprehension* (developing the ability to understand and interpret the information); c). *application* (developing the skil to putting information into practice); d). *analysis* (getting to the level where understanding and applying the knowledge make possible knowing the details by studying parts of the whole); e). *synthesis* (the combination of components or elements to form a connected whole); f). *evaluation* (making of a judgement about the amount, number, or value of something);

The revision that Lorin Anderson (2001) brings to Bloom`s taxonomy is, in fact, a new perspective of the same stages. There are three changes made by Anderson. The first one renames the first initial stage by using the verb *remember* seen as an update of the relevant knowledge from our long-term memory. A second change transforms the nouns, which give name to the next three stages into verbs, focusing on the active aspect of the concepts - *understanding, applying, analyzing,* while the last two stages` positions are reversed. In that way, the 5th stage becomes *evaluation*, while *synthesis* is seen as being the creative level and thus was named *creating*.

3. The present paper is just a part of the linguistic, pragmatic and didactic analysis we have made, having as a starting point a collection of texts extracted from the *Romanian Language and Literature* textbooks (highschool level). Our goal was to evaluate the efficiency of the language used in these textbooks and having that in mind, we applied a series of grid analysis to these texts, in our effort to analyze the interrogative didactic discourse from a lexical, morphological, syntactical, and especially pragmatic point of view.

Inevitably, studying the bibliography led us to Bloom`s taxonomy, which, as we have seen, understands the didactic process in stages according to the cognitive processes which are ordered from simple to complex. We have encountered a similar approach to the interrogative didactic discourse in an article (Sfârlea, 2004, pp. 27-29) signed by Lenuța Sfârlea who has made a case study together with her 6th grade students. Even if the discourse analisys of the textbook was a brief one – hymn as a literery species, the results of this study were surprisingly alarming. The project coordinator discovered that "the questions are randomly asked with no criteria" (*Ibidem*, p. 29).

Having Ms. Sfârlea`s study as a starting point, we have tried to see whether her conclusions are the same for the *Romanian Language and Literature* textbooks for highschool. Obviously, it is not our intention to make an exhaustive presentation of our analisys here, but we can bring to your attention some of our conclusions. Our conclusions have been reached analyzing textbooks for an entire school cycle. We have analysed the phenomenon vertically (textbooks edited by a singular publishing house for a whole school cycle) as well as horizontally (four textbooks edited by different publishing houses for the same level), seven texbooks approved by the Ministry of Education and Scientific Research (for the academic year 2014-2015) to show from a pragmatic and statistic point of view the presence and frequency of some types of questions related to Bloom`s taxonomy.

First of all, we have to mention the fact that we have identified and extracted, for our study a number of 639 exercises representing explicit interrogative structures, or contain such structures; the textbooks have 200 pages on average, which leads to a first obvious conclusion: the exercises where we could find a the slightest sign of an interrogative aspect have a frequency of less than ... one in two pages! It is also true that their occurence during the didactic endeavour is not near the statistic numbers, the interrogative structures being often grouped, resulting in clusters of 3-6 on one page. This, raises another issue: the presence within the written didactic endeavour of a great number of pages where the interrogative structures are not present which reduces the students` chances of developing an analytical and critical thinking skills.

4. A very important aspect that we find in reviewing the 639 exercises, we mentioned above, is the recurrence of the interrogative structures corresponding to the six cognitive levels of Bloom suggested. Their arrangement is surprising both in terms of vertical analysis of the textbooks issued by a single publishing house (the textbooks proposed for high school level by "Art" publishing house) and horizontal analysis of the 12th grade textbook versions issued by the four publishers considered (in addition to the "Art" publishing house we had in mind as mentioned in the bibliography section, "ALL Educational" "Niculescu ABC" and "Corint") or even the entire selected corpus.

The extremely significant differences between the recurrence of the interrogative structures that can be classified into the six cognitive levels mentioned by Bloom's taxonomy should become, at least, the wake-up call for a possible review of the concerned editions, if not a starting point for a new analysis or debate on this, when the criteria for evaluation and accreditation of the publishers will be reviewed.

Returning to our analysis, we can say that it has brought some unexpected results. When studying the textbook issued by "Art" publishing house we could notice a small representation of interrogative structured exercises aimed at questioning the appropriate cognitive level synthesis / creating in Bloom's Taxonomy, with only 12 occurrences. Regarding the other three publishers where only the 12th grade textbooks were elected, we discovered that they are deficient in what concerns the low representation of the interrogative structures targeting the first cognitive level. Two of the three 12th grade above-mentioned textbooks, have an equally poor distribution of the interrogative structures aiming evaluation and the third remains within the average identified recurrences.

Although probably most would have expected the evaluation exercises to have the most occurrences, with only 101 occurrences, they are only on the third place, which arouses curiosity and concern especially because of the fact that some textbooks have very few occurrences, as can be seen in Figure 1. Our overall assessment is that, while some textbooks mainly use some type of interrogative structures, others, it is precisely these they neglect.
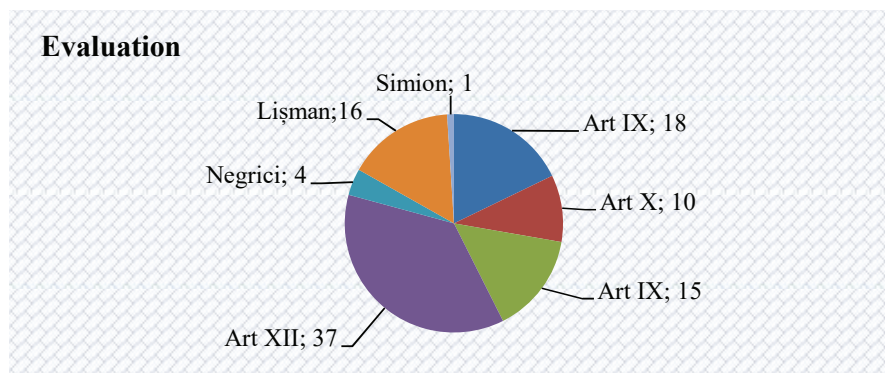

**Chart 1: The recurrence of the interrogative structures
related to the cognitive assessment level**

As we can see in Table 1, the largest recurrence, with a total of 237 appearances, over a third of the entire case, is of the exercises that are composed of interrogative structures corresponding to the second cognitive level proposed by Bloom`s taxonomy - comprehension / understanding.

		Art IX	Art X	Art IX	Art XII	Negrici	Lişman	Simion
1	Knowledge	21	10	6	30	2	3	3
2	Comprehension	31	35	43	20	40	16	44
3	Application	10	16	21	3	41	17	18
4	Analysis	7	10	5	13	16	5	12
5	Synthesis	3	2	4	3	10	5	13
6	Evaluation	18	10	15	37	4	16	1

Table 1: The recurrence of the interrogative structured exercises throughout the corpus of texts, according to the cognitive levels of Bloom's taxonomy

The above-mentioned note is meant to soften the slightly bitter taste caused by the one before it; what is to be appreciated here is the recurrence of the interrogative structures aimed at the cognitive level of comprehension / understanding is an extremely important one and, more than that, their distribution in the seven textbooks from which we extracted the corpus of texts is relatively balanced, as can be seen in Chart 2.
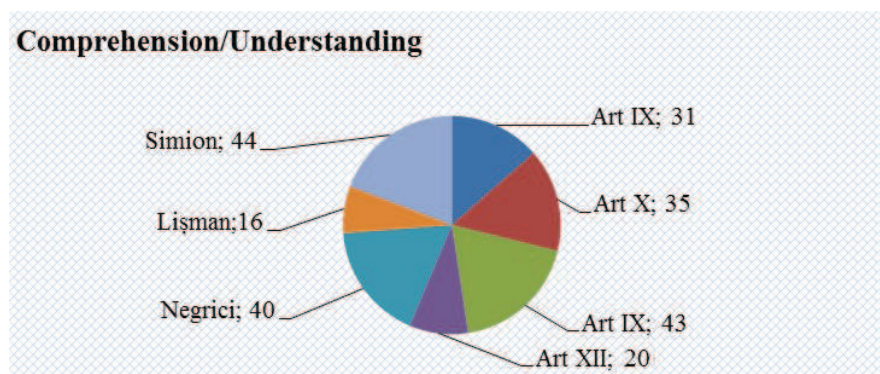

Chart 2: The recurrence of the interrogative structures related to the cognitive comprehension/understanding level

Analyzing further, if we were to make a hierarchy, we can see right after the cognitive comprehension/understanding level, as can be seen in Table 1, the cognitive exercises corresponding to third cognitive level - application / applying, with only 126 appearances.If the difference from the other level compared with wouldn`t be that great and if a number of reasonable recurrences could be found in relation to the whole sample, that is if their number were not just over the number of exercises that could be equally distributed to the six cognitive Bloom levels, the number of the interrogative structured exercises that match the application / applying would still be a plus, but just as a percentage. We say this because, for example, as can be seen from Figure 3 in the textbook for the 12th grade, issued by "Art" publishing house, we are presented with a very low number of recurrences - only three of them, while in in the textbook issued by "Niculescu ABC " publishing house (named after its manager " Negrici ") we have identified 41 recurrences.
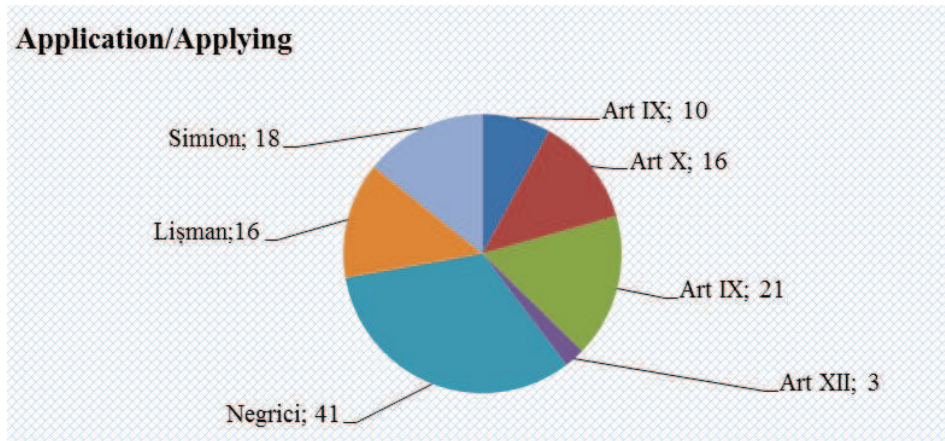
Chart 3: The recurrence of the interrogative structures
related to the cognitive application/applying level

At the first glance, these observations may seem insignificant, but read carefully, we realize that any changes to be made to the structure of the exercises proposed by the textbooks as working methods in the learning and formative process, should be a priority to be taken seriously if we want the direct beneficiaries and also the rest of us to have the future emphasized by the curriculum and syllabus as a final goal, that of having a well-trained young generation.

To emphasize these textbooks` deficiencies, we continue by saying that we have found an almost identical distribution of the *knowledge/remember* interrogative exercises and analysis / analyzing, with an almost halved number of appearances compared to the number of recurrences of the appropriate cognitive exercises ranked last.
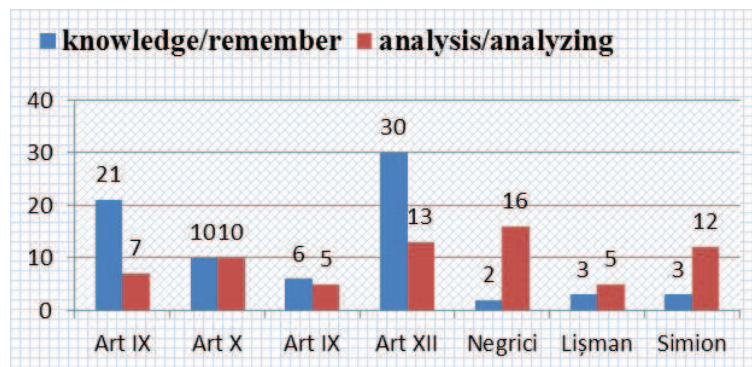

Chart 4: The recurrence of the interrogative structures
related to the cognitive knowledge/remember and analysis/analyzing levels

The only fact meeting our expectation is that the number of exercises corresponding to the synthesis / creating cognitive level are in last place with 40 recurrences. However, we shall see that their distribution in the seven textbooks is very different, with a minimum of two appearances (Art X) and a maximum of 13 (Simon XII) so that recurrences of the interrogative structures in only two textbooks exceed half of the total we have mentioned, while all four of the "Art" publisher's textbooks accumulate only 12 recurrences.

5. In order to further emphasize the above-mentioned observations we had as a starting point a textbook for the 12th grade (Art XII) and having classified the 106 interogative structures we have identified, we discovered a small recurrence of the exercises that according to Bloom`s taxonomy put information into practce (Table 2). There are only three of them!

The same number of occurences (three) we could find for the interrogative structures that targeted synthesis, and thirteen that targeted analysis. Unsurprisingly the highest occurence, were the interrogative structures of evaluation - 37, followed by the ones that involve memorising by refreshing the information previously studied, or by asking the students to access knowledge from other fields. The other occurences this means 20, were the interrogative structures that targered the second level - understanding and interpreting information.

Table 2: Interrogative structures distribution according to Bloom`s taxonomy

1	Knowledge	30
2	Comprehension	20
3	Application	3
4	Analysis	13
5	Synthesis	3
6	Evaluation	37

While the low ocuurence of some interrogative structures compared to the other types and to the number of the pages arouses concern with regard to achieving some psychopedagogical goals, the way they are used raises even more questions, as we shall see. Thus, of the 106 exercises, in only 10 situations they are distributed according to Bloom`s taxonomy, and this happens only from a statistic point of view, when we extract from the book all the interogative structures; in the whole textbook we were able to identify only two cases in which in consecutive exercises we can find interrogations targetting consecutive cognitive levels.

The first case we find is on pane 13 of the textbook, where the authors offer an exercise with regard to the symbolism of the poem "*Sonnet*" by G. Bacovia - *Discreet chromaticism* subpoint:

1) *Extract from the first two stanzas the words / structures that constitute visual images*. ("*Sonnet*" by G. Bacovia - *Discreet chromaticism* subpoint. Ex. 1, p. 13)

2) *"**Sonnet**" does not have the strong chromaticism of "Lead" or other texts "Decor", or* Yet*, Bacovian spaces are always subject to a stylized color, the color gray being the most common. It is a color that expresses the moods of a psychic subjected to a permanent erosion, the idea or an endless feeling of doom and thus the* chromatism even *when it is not obvious, it is a palpable presence. Can we discuss in this text about the presence of grey? Motivate your choice.* ("*Sonnet*" by G. Bacovia - *Discreet chromaticism* subpoint. Ex. 2, p. 13)

The two consecutive exercises aim Synthesis and Analysis levels. The first example of exercise looks at first glance, to be a non-interrogative structure, but from a logical perspective, at a cognitive level, it translates into a question: "What are the words / structures that suggest visual images?"

Obviously, to solve this exercise, the student must make some logical operations. First of all, he needs to update the information about the concept of "visual image" - the knowledge level of Bloom's Taxonomy - and then try to identify them. But identification is not a simple act of choosing from a number of elements, it requires an understanding of the context and an interpretation of the meaning word / structure, which requires a cognitive process specific of the second level of Bloom's Taxonomy – interpretation. Choosing the right item that fit the word / concept structure required by the literary typology of "visual image", requires a call to an algorithm previously learned. So switching to the next stage of the cognitive process, the third in Bloom's Taxonomy - application.

Because all these steps are completed for the student to form a critical view of a part of G. Bacovia's sonnet and only from a stylistic perspective, we obviously fit exercise into

those hiding an interrogation, which involves an analysis in the style of Bacovian poetic text. Therefore, this is an exercise involving the fourth level of Bloom's taxonomy - analysis.

The first example of exercise calls for a synthesis, because being able to solve it the student needs to know a broader range of constituent elements of Bacovian lyrical universe. That is, besides knowing the issues related to the chromatism" Sonnet", the student must have make a chromatic analysis of the poems "Lead", ("Decor", or "Purple Twilight" and he must put together the information from the previous years and relate to the text of the sonnet in question.

The other pair of consecutive exercises, following the hierarchy of cognitive processes, according to Bloom's Taxonomy, is found on page 17. They aim at understanding the poem "Testament" by Tudor Arghezi. The subtopic the authors of the textbook proposed as the title of this set of exercises is Spiritual Heritage, thus offering the students a suggestion on the lexical interpretation Arghezian text:

3) *Speaking directly to the reader, the poet considers the book as a step. What do you think it symbolizes? Can you explain starting from the choices below:*
• a path of knowledge;
• an upward path;
• the idea of perfection. ("Testament" by T. Arghezi. Paragraph: Spiritual Heritage, ex. 5, p. 17)

4) *Just as O. Goga in his poem "Prayer", Arghezi considers himself to be Testament, a keeper of his ancestors` experience. What are the lyrics that suggest this idea?* (Testament by T. Arghezi. Paragraph: Spiritual Heritage, ex. 6, p. 17)

If we take a look at the other consecutive exercises that contain interrogative structures we note that they do not take into account the cognitive processes and Bloom's Taxonomy. Thus we identify nine cases of such misconduct. In the first case, in consecutive exercises, we note a shifting from the evaluation to the interpretation level (from the 6th 2nd level); for the next two exercises - a transition from assessment to knowledge / recall; the fourth and the fifth situations are the most surprising: a) assessment - interpretation - evaluation; b) assessment - interpretation - knowledge / recall; and lastly we note ascending shifts from the first level, respectively the second one, to the last cognitive level.

6. The conclusions that can be drawn from this analysis are that in writing the textbooks submitted to our analysis, the interrogative-structured exercises do not observe the gradual progression of the learning process, of gaining the language skills required to achieve the educational – formative progress according to the curriculum and syllabus. The exercises targeting the first level of Bloom's taxonomy are neglected by some publishers, as well as other collections of evaluative exercise books or those aiming to publish a selection of exercises.

Therefore, it is very important, before proposing any new issues or new assessment scales of such auxiliaries, to put in debate the issue of developing teaching tools consistent with the cognitive levels, as proposed by Bloom's Taxonomy, so that the textbooks may be a real tool to support teachers and students in achieving educational desiderata, and not obstacles in achieving them, as we have seen it happen in many cases.

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