

USING THE STARBURSTING METHOD IN THE LEARNING PROCESS

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ABSTRACT

Some primary education teachers' perceptions regarding the use of the Starbursting method and the questions generated by the students by applying the Starbursting method within the context of learning to apply it were analysed in this research. The information was collected from the teachers by a focus group, and the information from the students was provided by collecting the questions written in the chat on the Microsoft Teams learning app. Teachers' answers and students' questions were analysed and grouped into categories. Regarding the use of the Starbursting method in primary education, during the Natural Sciences classes it was found that: it is applied to various topics, oral and written, mainly during knowledge acquisition and revision lessons; it is combined with other methods of searching for answers; the questions are made by capitalising on previous knowledge and supporting materials; teachers apply the Starbursting method creatively, seeking to streamline the process of information processing and learning by students. Regarding the questions asked by students, it was found that, due to their previous knowledge on this topic, most of the questions were relevant to the topic. It was concluded that in order to produce learning, the Starbursting method needs to be combined with other methods through which to identify the answers, to discuss them and to systematise the information. The use of the Starbursting method in Natural Sciences contributes to the in-depth analysis of information, from several perspectives, in a motivating manner and which persistently facilitates the task for a long time.

Keywords: analysis, creativity, brainstorming, problem.

INTRODUCTION

In the works of educational sciences, published both in Romania and the Republic of Moldova, Starbursting (in Romanian, "stellar explosion") was considered as a method (Oprea, 2003; Flueraș, 2005) or technique used within the educational process (Dulamă, 2008; Volontir, 2016). According to these authors, the name of the method or technique was coined in a single compound word from the words *star* and *burst*, this later meaning 'explosion'. Petruța (2017) calls it the *star bursting* method.

Oprea (2007, pp. 205-206) states that Starbursting is a new method of stimulating and developing individual and group creativity, similar to brainstorming. Palicica, Gavrilă & Boacă (2010) place the method in the category of problem-solving methods by stimulating creativity. Dhami, Belton & Careless (2016, p. 153) classified Starbursting in the category of analytical techniques whose main function is to generate ideas, scenarios, questions, hypotheses, options (Analytic technique, Primary function, Generating ideas, scenarios, questions, hypotheses, options). Jalil (2019) used "star bursting" as brainstorming technique to identify stakeholders (Stakeholder identification) for the projects of stones size extraction in Pakistan.

The technique is considered to be effective because of this many questions related to a concept (Flueraș, 2005) or subject, connections between concepts (Dulamă, 2008, p. 295), new discoveries and problem solving (Volontir, 2016, p. 81) are raised. Dulamă (2008, p. 296) argues that Starbursting is "a way of investigating a topic from several perspectives", "of developing productive and creative thinking, through individual and group activities". This method was used to develop the oral communication skill (Mirciu, 2017) and communication skills (Barna & Vicol, 2014). Livițchi & Cibuc (2020) claim that the use of this method in the teaching-learning process contributes to the understanding of concepts, the development of critical thinking, creativity and cooperation between students, to increase the degree of involvement of the whole group.

Is the method associated with a drawing of a five-pointed star to which five interrogative pronouns are associated: What? Who? Where? Why? When? (Flueraș, 2005, p. 181; Oprea, 2007, p. 205). It is noted that these interrogative pronouns are for guidance only, so teachers can choose others whenever they want to stimulate the production of questions on a topic. In the works of geography didactics, another list of interrogative pronouns (What? Where? When? How? Which? Why?) is recommended (Dulamă, 2008, p. 296; Volontir, 2016, p. 81) because they are associated with the key questions that a teacher or student should answer when explaining a geographical process. Each interrogative pronoun is associated with an aspect that should be studied and introduced: What? – the elements are involved in the process; Where? – the place where it shows up; When? – the time; How? – the way it shows up: stages; Why? – the cause; Which? – the conditions under which the process takes place; the consequences of the process (Dulamă, 2008).

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The description of the application states that it starts from the idea or problem firstly written in the center of the star, then on the sheet and lists questions about it (Oprea, 2007, p. 205). Dulamă (2008, p. 295) and Volontir (2016, p. 81) suggest that the teacher poses a problem-situation to the students, and its analysis will be done through the questions posed by the students. There are several steps that can be taken with students. Flueraş (2005, pp. 181-182) mentions five stages: "Problem statement"; Generating the list of questions; Drawing up another list of questions individually and then in groups; "Presentation of the group's products"; "Offering the answer to some questions."

Oprea (2007, p. 206) proposes five other steps, specifying some details on the structure and some requirements should be respected: "Proposing a problem"; "Organising the team in distinctive groups"; "Generating an extensive list of questions as diverse as possible"; "Communicating the results of group work"; "Highlighting the most interesting questions and appreciating the work in cooperation". Flueraş (2005) and Oprea (2007) point out that the answers to some of the questions can be optional.

Volontir states that the technique comprises three stages ("communicating the task; pair or group activity; answering activity") (2016, p. 81) and it exemplifies a way of capitalising on questions by searching for answers in a text and by processing the information in a tree type scheme. Breben et al. (2002, pp. 344-350) described how to apply the method in preschool education. In the drawing that represents a star, the central idea is introduced, and the questions are written on other 5 stars: What? Who? Where? Why? When? The students are divided in 5 groups and each group asks questions chosen from a category, then they present them to the larger group while the others formulate the answers. The authors also propose this technique as a game.

Regarding the types of questions that could be asked by students, Dulamă (2008, p. 296) states that they differ depending on the investigated content (a phenomenon or situation extracted from reality, story or other literary text), or on the resources given to students as well as the students' cognitive level. Flueraş (2007, pp. 179-180) refers to several categories in which the questions generated by Starbursting could be included: literal, analytical, interpretive, applied, transpositional, synthetic, and evaluative. According to Mirciu (2017), the questions asked to analyse the "Streets of London" song focused on informative aspects, interpretation, feelings and emotions.

In applying Starbursting, teachers should be aware of some of the conditions, requirements, and recommendations mentioned in the literature. Dulamă (2008, p. 295) argues that in order to ask questions, students should have some prior knowledge of the subject, the types of questions they can ask, and know how to apply an analysis technique appropriate to that content (for example, the essential questions associated with studying a phenomenon or process). Flueraş (2005) suggests debating the relevance of the questions asked.

Some benefits of Starbursting are mentioned though: it can be applied at any age and in any field (Flueraș, 2005; Oprea, 2007); it determines the involvement of each student in the activity (Flueraș, 2005); it is not expensive; no detailed explanation required; it is quickly understood by participants; it is a way to relax and a source of new discoveries; it stimulates raising questions; it facilitates the participation of the whole group when it is organised in a group (Oprea, 2007); "Students learn to ask questions about a topic" and "to write the answers to their own questions" (Dulamă, 2008, p. 296).

Petruța (2017) claims that "star bursting" can be used in Biology at the stage of setting and systematising knowledge. Each group asks questions associated with an interrogative pronoun. The paper provides three examples of white stork questions in each category. After making the questions, in order to assess the students' knowledge of the topic and for the students to find the correct answer to some of the questions asked above, the researcher states that the teacher can use the Response – Throw – Interrogate method.

Volontir (2016, pp. 81-82) introduced an activity carried out on the topic "Seismic processes and their effects", during the "General Physical Geography" school subject for the 10th grade as a model for applying Starbursting. Students read a text individually ("Earthquake Traces"), asked and answered the questions in pairs based on the text. In groups of four they developed a "linear tree" type scheme to systematise the information on this topic.

In the survey conducted by Petruța (2013) in which he applied a questionnaire to 36 teachers for primary education, regarding the use of interactive methods / techniques, they claimed that they applied "Star bursting" in their 1st grade and in Natural Sciences classes during their 3rd and 4th grade. "The Star bursting method" is hardly applicable by 22.22% of the 3rd grade surveyed teachers and by 19.44% of the 4th grade teachers.

METHODOLOGY

Objective

In this research we aimed to achieve two objectives: analysing teachers' perceptions on how to use the Starbursting method in primary education in Romania; analysing the questions generated by students by applying the Starbursting method, in the context of learning to apply it.

Participants

Professors and students from Babeș-Bolyai University of Cluj-Napoca were involved in the research. The focus group was attended by 12 students of the "Pedagogy of Primary and Preschool Education" specialisation at the Faculty of Psychology and Educational Sciences, who work as teachers in primary education and used this method in their classroom. Two groups of

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students participated in the teaching activities in which the Starbursting method was used: eight students from different specialisations at the Faculty of Geography, who are going through the second level of the Psycho-pedagogical Study Programme, in order to become high school geography teachers; 15 students of the "Curricular Management" master's programme at the Faculty of Psychology and Educational Sciences, who work as teachers in pre-university education.

The following were involved in the research: a university professor who applied the Starbursting method to two groups and analysed the questions asked by the students; a university lecturer, the author of this research, who organised the pedagogical training activities with the students of the "Pedagogy of Primary and Preschool Education" specialisation who organised the focus group, analysed the data retrieved from the teachers in the focus group and questions asked by students. The participants were informed about the confidentiality and agreed to get involved in the research.

Materials and methods

Information on how to apply the Starbursting method to primary school students was collected through the focus group method. In the focus group, we tried to find the answers to the following questions: What subjects and classes did you use the Starbursting method in? Why did you choose to use the Starbursting method in the teaching activities you organised? Why did you consider this method? How can the Starbursting method be applied? What stages of the lesson did you use the Starbursting method at? What topics did you request students to ask questions about using the Starbursting method? What teaching materials did you provide to the students based on which the students asked questions? What do you think has been improved by using the Starbursting method in the *Natural Sciences* school subject? What are the strengths and weaknesses of this method when applied to the *Natural Sciences*? We collected information about applying Starbursting to students in order to learn how to use it with students in the classroom by observing and downloading it from the chat.

Procedures

After giving their consent to get involved in the research, the students of the "Pedagogy of Primary and Preschool Education" specialisation participated in the focus group, where they answered the researcher's questions and provided other information on this topic. The students' answers were written by the researcher and the students. Students from both two groups participated in two activities organised on the Microsoft Teams learning app. The professor asked them to ask questions about the Danube Delta, based on their previous knowledge. After asking the questions and posting them on the chat, the students at the Faculty of Geography searched for the answers on the Internet, wrote them on the chat, and discussed them with the professor and the whole group. The "Curricular Management" MA students asked the

questions, then discussed with the professor how they used the method with their students, what the possible practical options are, what the benefits of applying it to students are.

Data analysis

The answers given by the teachers to the questions addressed in the focus group and the questions answered by the students on the "Danube Delta" topic were submitted to the content analysis. The questions and answers were grouped into categories, based on several criteria.

RESULTS AND DISCUSSIONS

Using the Starbursting method in the primary education

The use of Starbursting in primary school education was analysed based on the answers and information provided by the 12 students in the "Pedagogy of Primary and Preschool Education" specialisation, who are primary school teachers and who performed the teaching training in schools.

School subjects and classes in which Starbursting was used. The teachers claimed that they used Starbursting mostly during *Romanian Oral and Written Communication* and *Romanian Language, Mathematics and Environmental Exploration, Natural Sciences, Geography, Personal Development* and that they used it very little or not at all in other school subjects. They used the oral method, frontally, in the preparatory, first and second grade so as not to waste time writing questions while they used it, in writing, individually, in pairs and in groups, with third and fourth graders, who had better writing skills.

Phases or stages of the lesson in which the Starbursting method was used. The teachers used this method in the first two stages of the lessons organised according to the Evocation – Realisation of meaning – Reflection model. In other lessons they used the method when checking their previous knowledge, in which the students asked and answered the questions raised by their classmates. When acquiring knowledge, students asked questions before studying a text or visual material, but also during or after studying these materials (for example, after reading a story or lesson in the textbook).

Reasons for choosing the Starbursting method. Teachers took into account the objectives to be achieved and the specific content proposed for the study when they chose to use this method. The teachers agreed that this method could be applied to any content. If they proposed to ask questions that use the interrogative pronouns mentioned in the cited sources (Flueraş, 2005; Oprea, 2007; Dulamă, 2008; Volontir, 2016), then this method could be applied successfully and efficiently to the study of texts in which phenomena, processes, actions are introduced. The teachers mentioned that they chose to use this method also out of the desire to diversify their teaching methods, styles of strategies (Table 1).

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Table 1. Reasons for choosing the Starbursting method with students

Reason category	Reason
Objectives pursued	<ul style="list-style-type: none"> ● generating various questions ● motivating students for the activity ● stimulating curiosity ● in-depth analysis of a content (problem-situations, phenomena, processes, narratives) ● assessment of previous knowledge ● increasing the degree of students' involvement in the lesson
The specific content proposed for the study	<ul style="list-style-type: none"> ● presentation / description of some phenomena, processes ● presentation of actions ● presentation of problem situations
Combining methods	<ul style="list-style-type: none"> ● student-centred methods, alternating with teacher-centred ones ● methods of analysis with methods of interpretation

Conditions to be followed in selecting and applying the Starbursting method. The teachers took into account the type of lesson, so they specified that the Starbursting method could particularly be applied in the lessons of knowledge acquisition and revision (Table 2). The teachers claimed that in both cases, after generating the questions, the students looked for the answers and discussed them with the teacher.

A number of conditions under which teachers design how to apply the Starbursting method apply to students. For students who are younger (8 years old), a smaller volume of previous knowledge and who are less experienced in asking questions, the method was applied frontally and in groups of 4-5 students. The 3rd and 4th graders asked questions individually, in pairs and in groups, and looked for the answers in the sources recommended by the teacher. The teachers mentioned that they chose this method to involve all the students in the activity which led to a higher degree of students' interaction. The method was applied where there were larger time resources. They also suggested that students generated questions individually, in pairs and frontally, not in groups, if the space did not allow students to be grouped.

How to apply the Starbursting method. Based on the discussions with the teachers participating in the focus group, we identified several types of creative application of this method in the primary education.

(1) a student, a pair, or a group asks five different questions (What? Who? Where? Why? When?). But there is a risk of asking several similar questions; students can be provided a topic to solve at home; questions can be asked before or after studying a text or visual materials; classmates answer questions after their presentation;

(2) a student, a pair or a group asks a certain number of questions or as many questions as possible in a category during a time lapse (*Group 1: What? Group 2: Who? Group 3: Where? Group 4: Why? Group 5: When?*);

questions can be asked before or after studying a text or visual materials; groups can answer their own questions or the questions of another group.

The teachers mentioned that a competition can be organised between the teams, both in generating the questions and the answers: one team answers the questions raised by another team. If the students write the questions on sheets of paper around a coloured star, they can stick the stars with the questions on the board thus leading to a “star explosion” representation. The teachers mentioned that they proposed the students to ask questions according to the topic. They noticed that it was more difficult for students to ask questions in the ‘Who’ category? in some subjects and that they had difficulties in asking questions in the ‘How’ category? The teachers pointed out that 6 or 7-pointed stars can be used too, not only with 5-pointed ones as mentioned in the literature (Breben et al., 2002; Flueraş, 2005; Oprea, 2007).

Table 2. Conditions to be followed in choosing and applying the Starbursting method

Type of lesson	<ul style="list-style-type: none"> • knowledge acquisition lesson • revision lesson
Characteristics of students	<ul style="list-style-type: none"> • age of students • level of prior knowledge • level of oral and written communication skills development • passivity or desire to get involved in the activity • level of motivation for learning • their experience or skill / ability to ask questions
Resources	<ul style="list-style-type: none"> • time • space

Suggested questions for students using the Starbursting method. Following the discussions we had with the teachers based on the contents of the school curricula of *Mathematics and Environmental Exploration* (preparatory, 1st and 2nd grade), *Natural Sciences* (3rd and 4th grade), *Geography* (4th grade), we selected several topics in which the *Starbursting method* can be used to increase students’ involvement and the effectiveness of teaching activities (Table 3). At the researcher’s request, the teachers also introduced examples of questions on several topics (Table 3). We note that the questions were associated with stories (*The Adventures of a Water Drop*), sets of objects (*Bucharest; the Solar System; coniferous or spruce forest*), and natural processes (*Water Cycle in Nature*).

Table 3. Examples of topics and questions proposed by teachers in the focus groups

School subjects	Grade	Examples	
		Topics	Question
Mathematics and	preparatory	- Water in nature (precipitation, rivers,	The adventures of a water drop

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Environmental Exploration		lakes, seas, etc.) - Natural phenomena: rain, snow, wind, lightning, thunder	What does the water drop look like? How did the water drop get in the cloud?
	1st grade	- The sun, a source of heat and light - Water phase changes: melting, freezing, evaporation, condensation, sublimation	Why did the water drop fall from the cloud? Who warmed the water drop? When did the water drop fall from the cloud?
	2nd grade	- The planets of the Solar System - Major landforms: mountains, hills, plains	The planets of the Solar System Which are the planets of the Solar System? Where are they located? Why are they located at different distances from the Sun? What cosmic body is in the centre? How many planets are in the Solar System?
Geography	4th grade	- Major relief units - The Carpathian Mountains - The Romanian Plain - Bucharest – the capital city of Romania - The Earth - a planet in the Solar System	Bucharest Where is it located? When was it first mentioned in documents? Which rivers cross it? Why was the capital chosen? How many inhabitants does it have?
Natural Sciences	3rd grade	- Groups of animals (mammals, birds, fish, reptiles, insects) - The seasons - States of aggregation and its phase transformations (melting, freezing, evaporation, condensation, sublimation) - The water cycle in nature - Use of energy sources (wind, sun, waterfalls, burning fuel, food)	The water cycle in nature Where does it occur? Why does it happen? What kind of phenomena may occur? What are the states of water aggregation within this cycle? How does water change from one state of aggregation to another? How does the water cycle

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			in nature occur?
	4th grade	<ul style="list-style-type: none"> - Main groups of animals (mammals, birds, fish, reptiles, insects) - Living environments: garden, forest, pond, delta, etc. - Natural resources: water, soils, rocks, minerals, wood, fuels, food. - Protection of natural resources 	Coniferous forest Where is it located? Which trees does it have? Why does it grow in the mountains? Who are its enemies? What are its specific animals? Why is it green in winter too?

Teaching materials used in asking questions. The teachers provided the students with texts, drawings, photographs on the basis of which they asked the questions and answered them. In some learning activities, students asked questions based on their previous knowledge or analysis of an oral or written problem-situation and looked for answers based on texts and visual materials from textbooks, other books or the internet. In order to ask relevant questions on a topic without supporting material, students should have some prior knowledge of that topic.

Benefits of using the Starbursting method. As students asked questions and answers, teachers noticed that the time to focus on solving the task increased, whether they were working with the entire class, individually, in pairs, or in groups. They noticed an increase in the interest, curiosity and motivation of most students, as well as the degree of involvement of those who were passive during frontal activities. Structuring the questions and answers (Qs & As) session as a competition was interesting, challenging and motivating for the students. As a result of the repeated practice of this method, the teachers noticed that the students learned to ask questions more correctly and concisely, to correlate them with the information in the texts and visual representations, to better differentiate the essential from the non-essential aspects. In studying the stories, the students asked unique answers when they were proposed to change their content and to unveil their creativity.

The strengths and weaknesses of the Starbursting method. The teachers appreciated that the strengths of applying this method to *Natural Sciences* are the following: students learn to deeply analyse a topic; in a short time many questions are generated on a topic; students learn to ask concise questions relevant to a topic. However, they also noted some weaknesses: not all students asked questions when working in groups; it was not possible to determine each student's contribution within the group; not all questions were relevant to the topic; there were no essential questions that students should have looked for and known the answer to.

Analysis of questions generated by the Starbursting method

The purpose of the activities was to learn in a practical way how to apply the Starbursting method to a certain topic with the students. During the organised activity, the students played the role of students, but without being asked to adjust the questions and answers to the level of primary or secondary education. Each student was given the task of individually asking questions in a particular category and writing them down by chat. Geography students were asked to ask at least five questions, and the others to ask as many as possible, depending on the time allotted.

Based on the analysis, the teacher who organised the activities grouped the questions collected from the two groups into three categories: questions relevant to the topic, which address key issues; questions related to details; questions asked from a personal perspective. It was observed that, although the students worked individually, based on their previous knowledge, they asked different questions within a category, and there were rarely overlaps. The fact that most of the questions were considered relevant to the topic indicated that the students had knowledge about the proposed topic. A few questions focused on issues less relevant to the topic and a few were asked in a way that indicated a personal interest (Where do we find...? What do we find...? Why can't we fish...?).

The students at the Faculty of Geography provided the answers they wrote in the chat orally and discussed them with the professor. During the discussion, the professor added several key questions to allow understanding of this topic (Table 5).

Table 4. Questions asked by students about "The Danube Delta"

Number		Questions		
Students	Questions	Relevant to the topic	Concerning details	Asked from a personal perspective
2	11	WHAT? What are the wide-spread species of fish? What are the endemic species of fish? What is the surface of the delta? What is the position of the Danube Delta? What are the tourist attractions in the Danube Delta area? What are the protected plants? What are the arms of the Danube?	-	-

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		<p>What are the landforms in the delta? What are the specific birds of the Danube Delta? What are the wild mammals that live in the Danube Delta? What are the endemic plants of the delta? What are the characteristics of the delta influenced by?</p>		
2	12	<p>WHERE? Where is the Danube Delta located? Where are the sand dunes in the Danube Delta? Where are its three arms? Where does the water from the three arms of the Danube flow? Where is Sfântul Gheorghe arm? Where do the seagulls in the delta live? Where is the richest vegetation in the Danube Delta?</p>	<p>Where do we find the most water lilies in the Danube Delta? Where are the sunniest days in the Danube Delta?</p>	<p>Where can we stay when visiting the Danube Delta? Where can we find information about the Danube Delta? Where do we find the most water lilies in the Danube Delta?</p>
3	16	<p>WHY? Why is it considered a delta? Why is it constantly changing? Why does it have a great faunal and floristic diversity? Why is it in danger? Why was it included in the UNESCO World Heritage List? Why do people visit the Danube Delta? Why do we need to protect this area? Why is the Danube Delta unique? Why is the surface of the delta changing? Why is it a nature</p>	<p>Why are people in the area said to be poor? Why can't we fish anytime, anywhere?</p>	<p>Why can't we fish anytime, anywhere? Why do we need to protect this area?</p>

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		reserve? Why is the Danube Delta special?		
2	10	WHEN? When was the Danube Delta formed? When did the Danube Delta become a Biosphere Reserve? When did the Danube Delta become a UNESCO World Heritage Site?	When is the duration of the sun shining longer? When did the population of the Danube Delta mix? When is the Danube Delta most visited? When was Sulina declared a topic of national interest? When do migratory birds arrive in the Delta? When can you fish in the Danube Delta?	When is the best time to visit the Danube Delta?
3	12	WHICH? Which landforms do we find in the Danube Delta? Which type of fauna do we find in the Danube Delta? Which type of flora do we find in the Danube Delta? Which type of vegetation do we find in the Danube Delta? Which species of protected birds exist in the Danube Delta? Which climate is characteristic to the Danube Delta? Which tourist attractions are there in the Danube Delta? Which ethnic groups live in the Danube Delta? Which are the nationalities of the	Which activities can take place in the Danube Delta? Which traditional types of food can one find in the Danube Delta? Which tourist attractions are there near the Danube Delta?	Which landforms/ fauna / flora / vegetation do we find in the Danube Delta?

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		people living in the Danube Delta?		
1	5	WHO? Who is the manager of the Danube Delta? Who lives in the Danube Delta?	Who regulated the course of the Sulina arm? Who is buried in the Danube Delta area, according to Homer's writings? Who was the representative athlete of the Danube Delta?	
1	5	HOW? How did the Danube Delta form? How is the Danube Delta currently evolving? How can we move in the delta from one place to another? How is the delta being capitalised today? How will the Danube Delta develop in the future?	-	-

Table 5. Questions relevant to the topic asked by the professor during the discussions

Category of questions	Questions
<i>Where?</i>	Where are the Danube Delta ridges / lakes located?
<i>Why?</i>	Why did a delta, not an estuary, form at the mouth of the Danube in the Black Sea? Why was the Sfântul Gheorghe arm formed first? Why is the population density low in the Danube Delta?
<i>What?</i>	What kind of ridges are there in the Danube Delta? How deep is the water in the arms of the Danube? What kind of human settlements are the most specific in the Danube Delta? What are the conditions required to form a delta at the mouth of the river, not the estuary? What are the most important main attributes / characteristics of the Danube Delta? What are the main occupations of the inhabitants of the Danube Delta? What is the share of the area in the Danube Delta?

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	What is the population density in the Danube Delta?
Which?	Which main communication routes are in the Danube Delta? Which harbours are in the Danube Delta? Which lakes / ridges are in the delta? Which resources can be found in the Danube Delta?

CONCLUSIONS

Based on the analysis of teachers' perceptions about the use of the Starbursting method in primary education during the Natural Sciences classes, we came to some conclusions: it is applied to various topics, orally in the first three grades and in writing in the last two, especially in knowledge acquisition and revision lessons; it is combined with other methods of searching for answers; the questions can be asked frontally, individually, in pairs or in groups, by capitalising on previous knowledge and supporting materials. We noticed that primary school teachers in Romania apply the Starbursting method creatively, seeking to streamline the process of information processing and learning by students.

Regarding the questions asked by the student, these were grouped into seven categories, not five, in order to capture more fully the value of this method. Due to students' previous knowledge on this topic, most of the asked questions were considered relevant to the topic. To ensure learning, the Starbursting method needs to be combined with other methods by which to identify the answers, to discuss them and to systematise the information. Finally, the use of the Starbursting method in Natural Sciences contributes to the in-depth analysis of information, from several perspectives, in a motivating manner which persistently facilitates the task for a long time.

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