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**Dangerous natural phenomena and features of teaching in school geography**

This scholarly article explores the integration of teaching methods in school geography to enhance students' comprehension and preparedness for hazardous natural events. It provides an overview of the article's focus on incorporating topics related to dangerous natural phenomena into geography education. Moreover, it discusses the importance of such education in fostering resilience and promoting safety awareness among students. It may also suggest practical teaching approaches and resources for educators to effectively convey these concepts in the classroom. This article advocates for the inclusion of dangerous natural phenomena in school geography curricula as an essential component of comprehensive environmental education. By examining events such as earthquakes,, hurricanes, and volcanic eruptions, students gain valuable insights into the complex interactions shaping the Earth's dynamic systems. Furthermore, integrating discussions on risk assessment, mitigation strategies, and disaster preparedness empowers students to become informed global citizens capable of navigating and responding to environmental challenges. Through engaging, hands-on activities and case studies, educators can cultivate students' critical thinking skills and resilience in the face of natural hazards. Overall article underscores the significance of incorporating the study of dangerous natural phenomena into school geography curricula to foster environmental literacy, promote proactive risk management, and inspire stewardship towards the planet.

*Keywords:* comprehension, hazardous, safety awareness, critical thinking, stewardship, environmental education, strategies, curricula

*Introduction*

In an era marked by increasing environmental challenges, understanding dangerous natural phenomena is crucial for the education of future generations. School geography plays a pivotal role in providing students with the knowledge and skills to comprehend, mitigate, and adapt to these phenomena. In recent decades, there has been a notable rise in the occurrence of natural hazards and the consequential human and material losses on a global scale. This escalation is further exacerbated by factors such as heightened population density, degradation of the environment, and the impacts of global warming. Primarily, the transformation of natural hazards into disasters is frequently attributed to inadequate awareness levels and a lack of resilience within communities.The initiation of prevention efforts begins with the widespread distribution of information, and the initial stride toward constructive actions involves heightened awareness. Considering the pivotal role schools play in shaping values, students and educators can play a substantial role in fostering a preventive culture.

*Methodology and materials*

The function of the education system in reducing the risk of disasters.

Children often constitute the most vulnerable segment of society during disasters due to their limited access to information, resulting in a lack of knowledge and skills essential for self-protection and sound decision-making in challenging circumstances. Schools, being integral community hubs, hold a pivotal role in mitigating disaster risks, considering that children spend a significant portion of their time there, and the school environment significantly shapes their future.

The most effective approach to reducing disaster risks involves altering human behavior through the widespread dissemination of information crucial for individual and collective safety. This serves as a potent Disaster Risk Reduction (DRR) tool. To achieve this objective, it is imperative to:

1. Disseminate DRR information, particularly among communities residing in high-risk zones.
2. Develop educational programs focused on disaster risk reduction.
3. Cultivate a safe behavioral model and essential skills among students.

Society, with schools at the forefront, bears a significant moral responsibility in creating a secure environment for students and educators. The higher the levels of education, awareness, and self-organization, the greater the potential to prevent or alleviate the adverse consequences of natural or man-made disasters.

All endeavors aimed at enhancing safety and disaster preparedness should be executed through collaborative

efforts between school administrations, teachers, students, and emergency management authorities. Besides

implementing DRR teaching programs, it is crucial to acknowledge our responsibility for the lives of students.

Recognizing the psychological and age-specific characteristics of students, it is evident that they may often be passive in seeking information about disaster risk reduction and might not fully grasp the severity of the problem. Nevertheless, with adequate efforts, even the youngest individuals can become valuable messengers of critical information to their families and communities.

A significant contemporary challenge lies in providing children with comprehensible information about the intricate cause-and-effect relationship between humanity and the environment. The objective is to empower children with essential skills to make sound decisions in critical situations.

Interactive teaching methods.

Educators have the flexibility to employ diverse teaching methods when imparting lessons on disaster risk reduction in the classroom. These may include mini-lectures, debates, brainstorming exercises, presentations, games, the Socratic Method, and experiential learning, among others. It is crucial to present information comprehensively and appropriately, considering the unique characteristics of each age group. The delivery of information should not induce fear in students. Instead, students should be equipped to assess danger preemptively, remain calm, and respond appropriately in the event of an actual occurrence.

1. *Mini-lectures*

A mini-lecture serves as a concise presentation aimed at conveying specific information to the audience. While these lectures offer students knowledge, they may not necessarily foster skill development. It's important to note that during mini-lectures, teachers are typically more active, while students tend to be relatively passive.

The selection of material for mini-lectures can encompass facts, ideas, theories, etc. Teachers should pre-prepare theoretical and visual content from various sources, including diagrams and photos, to enhance the lecture's appeal to students. The use of visual aids becomes especially significant when considering that a student's visual memory is often more developed.

Organizing the lecture material in a logical and easily understandable manner is crucial, progressing from simpler to more complex concepts. It's advisable not to overload a mini-lecture with excessive information, dedicating each session to a single topic.

While delivering a lecture, the teacher should encourage active student participation by arranging them in a way that facilitates discussion, such as placing them in a circular fashion around a table instead of the traditional frontal arrangement. Despite being viewed as a relatively passive teaching form, the teacher must motivate students to ask questions, maintaining visual contact and periodically checking the audience's engagement.

At the conclusion of the lecture, summarizing the main points is essential. Although special technical equipment is not necessarily required for a mini-lecture, the use of visual aids like diagrams, photos, charts, and tables is recommended. Additionally, the incorporation of tools such as PowerPoint presentations is possible, contingent on the availability of special equipment such as a laptop or projector.

1. *Discussion*

A discussion serves as an interactive approach for examining various approaches, ideas, and issues within a group setting. Unlike a lecture where the teacher imparts pre-prepared information to students, in a discussion, the dynamic is reversed – students take an active role, and the teacher gains information from them. The effectiveness of a discussion increases with the intensity of student involvement.

Engaging in a discussion proves to be a potent method for cultivating various skills such as logical reasoning, attentive listening, articulating arguments, and showing respect for diverse opinions. Furthermore, discussions can serve as effective motivation for students. The anticipation of active participation encourages them to independently seek information on the topic at hand, ensuring their preparedness for the ensuing discussion. Any subject that can elicit varied opinions is suitable for discussion, be it a novel, an illustration, a short film, or even a musical composition. During discussions, questions like "Why?", "How?", "What if?" and exploring solutions to problems become crucial.

When planning a discussion, it is essential to ensure that students possess adequate knowledge about the topic. This enables them to express informed opinions, provide justifications, and constructively critique the views of their peers. Without this foundational knowledge, discussions may lose significance and become limited to a clash of two opposing opinions.

The responsibility for a successful discussion primarily lies with the teacher, who acts as a facilitator. The teacher must define the discussion format, addressing aspects such as who will speak, for how long, and in what order. Encouraging participation from all students, including the passive ones, is crucial. Establishing discussion rules collaboratively with students, emphasizing orderly speaking, avoiding interruptions, and respecting diverse opinions, is important.

Maintaining a neutral stance and not displaying agreement or disagreement with participants' ideas is crucial for the teacher. A successful discussion is also contingent on having an optimal number of participants. In larger groups, efforts must be made to involve every student, and having an equal number of students in opposing groups fosters balanced discourse.

Post-discussion, summarizing results is necessary, initially done by the teacher and eventually involving students as they gain experience. This summary encompasses both the content learned during the discussion and an evaluation of the process, considering factors like students' comfort and adherence to rules.

Setting up a discussion requires no special environment or equipment, although having a blackboard can facilitate expressing views in writing.

1. *Excursions*

An excursion entails a collective visit to an institution or organization with the aim of gaining insights into its operations. It provides students with the opportunity to witness real work processes and acquire firsthand information about the entity's distinctive features. The primary purpose of a site visit is to illustrate concepts. Experiencing something firsthand during an excursion enhances students' retention compared to receiving information through narration. However, organizing educational activities beyond the school premises may pose challenges, necessitating careful planning to avoid misunderstandings and achieve maximum effectiveness. In preparation for an excursion, the teacher must consider and plan for several factors, including the excursion's purpose, the designated time, the optimal number of participating students, and associated costs. If the goal involves familiarizing students with different professions, special attire may be necessary, and arrangements with the host organization must be made in advance. Informing students about the excursion plan beforehand is crucial. They should be aware of what they are going to see, what aspects to pay attention to, etc. Teachers should encourage students to ask questions and may find it beneficial for students to take notes during the excursion. Post-excursion, the teacher and students should engage in a collaborative discussion about the experience. Topics for discussion may include what they observed and heard, the clarity and interest level of the information, and potential plans for subsequent excursions, which can be devised together with students.

1. *Brainstorming*

Brainstorming serves as a collaborative and creative group technique with the objective of generating and exploring a maximum number of ideas for solving a specific problem. It is particularly useful when there is no clear answer to a question, and the aim is to produce numerous ideas for subsequent evaluation and selection based on group consensus.

The process of brainstorming is straightforward. The teacher initiates by identifying the topic and outlining a plan. Establishing ground rules for group work is crucial before beginning the brainstorming session. These rules typically include treating all ideas as valid, refraining from making judgments during the brainstorming phase, emphasizing quantity over quality, and fostering openness among participants and facilitators.

Students actively contribute as many ideas as possible related to the specific topic, while the teacher records them on a blackboard or flipchart. A predetermined time limit, for instance, 20-25 minutes, is set for the brainstorming session. Following the idea generation phase, the teacher reads the ideas aloud to ensure clarity for all group members. Subsequently, students assess the ideas using a scale of 3-5 and group together similar concepts. Finally, 3-4 ideas with the highest ratings are selected.

The teacher plays a crucial role in leading the brainstorming session, requiring attentive listening, providing feedback, and encouraging students to contribute ideas. The teacher maintains a neutral position, aiming to facilitate the process and extract the maximum number of ideas.

Evaluation of the results follows the brainstorming session. To ensure effectiveness, the group size during brainstorming should not be excessively large. If dealing with a sizable group, the teacher must engage everyone actively. A circular seating arrangement is preferable, potentially around a table, with the teacher positioned in front for optimal visibility. The essential tools for conducting brainstorming include a blackboard or a flipchart.

1. *Presentations*

A presentation serves as a method for delivering theoretical or practical content in front of a group, fostering the development of crucial skills such as communication, articulation, and the ability to substantiate personal positions with arguments. Presentations can cover a wide range of topics, with the recommendation to focus on a maximum of three topics to maintain effectiveness.

In preparing presentation material, the teacher should consider its specific nature. If students are making the presentation, the teacher should provide them with a standard presentation template in advance.

Presentations typically consist of three parts:

1. Introduction: This initial segment is essential to capture the audience's attention and generate initial interest. It is relatively brief, constituting about 20% of the total presentation time.
2. The Main Part: This is the most substantial and critical section where the main thesis and perspectives are presented using illustrative material. Effective delivery, including intonation, body language, and style, significantly influences the audience. This part encompasses 70% of the total presentation time.
3. Conclusion: The concluding part involves summarizing the presentation, emphasizing its purpose, results, etc. This section takes approximately 10% of the total presentation time.

Collaboratively, the teacher and students can establish an assessment scale and evaluate each presentation together, particularly for educational presentations.

The equipment necessary for presentations includes a multimedia projector, a laptop, and either a blackboard or a flipchart. PowerPoint presentations are often preferred.

1. *Case study*

Case studies are commonly employed in the educational field with the aim of acquiring additional information and knowledge through specific examples. The subject of a case study does not necessarily have to revolve around an individual; it can encompass a group of people, various situations, or phenomena.

In the process of a case study, a particular case is examined and analyzed. Preparation by the teacher is crucial before undertaking a case study. The material should be engaging for students, considering their age-specific characteristics, and allowing for meaningful discussions on the topic.

Beyond the material, the teacher must also formulate questions in advance. These questions may pertain to specific groups of people or situations, aiming to understand students' perspectives on the case, its acceptability, and potential solutions to the identified problems.

No specialized equipment is required during a case study, and it is beneficial for all students to have access to printed materials. If necessary, the teacher can utilize a multimedia projector or a laptop to enhance the presentation of the case study.

1. *Role play*

Role play stands as a group activity extensively employed across all educational levels, ranging from primary schools to higher education. In this method, students enact real-life situations, assume specific roles, and thereby gain both theoretical knowledge and practical experience.

It serves as an active teaching form where students engage both mentally and physically. Beyond merely reviewing a topic, role play provides students with the opportunity to express their attitudes and emotions related to the subject, facilitating a more effective learning process and enhancing the quality of education. Active teaching methods, such as role play, aid students in absorbing new material more easily compared to traditional methods like reading, listening, or observing.

Before commencing a role play, the instructor should introduce the topic and provide a brief overview. For instance, they may say, "This game requires cooperation and will last for 20 minutes, after which we will review and summarize the results."

Next, the teacher divides the class into small groups, and various methods can be employed for this purpose:

1. Division according to a pre-prepared list, where the teacher controls group composition.
2. Grouping based on students' preferences.
3. Random division using a counting method, where students counting "one" form one group, and those counting "two" form another.
4. Grouping through colored cards, where students with cards of the same color form a group. This can also be done with postcards or based on birthdates, months, seasons, etc.

Following this, the teacher provides instructions to the students, remaining neutral during the group work phase and monitoring the process. The subsequent phase involves the actual role play, during which students perform their designated roles based on the given instructions. The success of the role play hinges on active involvement and a positive atmosphere, encouraging passive group members to participate.

Post-role play, participants share their perspectives on what they gained or learned from the exercise. Students express emotions, evaluate the results of the group work in terms of their learning, and discuss positive and negative aspects of the process. The ensuing discussion should focus on content and process rather than personalities or characteristics of the participants.

Summarizing the results is essential, connecting the group work with the goals initially set for the role-playing activity.

1. *The Socratic Method*

With the Socratic Method, the teacher exclusively poses problem-oriented questions, avoiding informative ones like "What do you think about this issue?" or "What explanations do we need for this?" Information is not provided by the teacher; instead, the method involves analyzing exceptions and challenging straightforward ideas. Students are prompted to think independently to arrive at solutions.

The Socratic Method can be applied through various formats such as discussions, debates, and posing problematic questions. Occasionally, the teacher may present facts that contradict the views expressed by students but never discloses their own position. The teacher guides students in challenging answers from different reputable sources, fostering an environment where students freely express their opinions, bold hypotheses, and versions while critically analyzing each other's arguments.

Examples of utilizing the Socratic Method during a lesson include:

1. Posing problematic questions to stimulate students' thinking on a specific issue.
2. Providing both supporting and contrary examples to illustrate the discussed event.
3. Critically reviewing the arguments presented by students.
4. Encouraging the class to engage in a discussion on the issue.
5. Fostering the development of students' ability to provide critical analysis of their own and others' viewpoints.
6. Tasking students with analyzing facts and notions to understand the essence of the material.
7. Encouraging students to connect knowledge obtained from different sources.
8. Requesting students to draw conclusions or assessments based on their own arguments.
9. *Learning by doing*

Engaging in hands-on learning is a practical approach where students not only receive information but also precise instructions for conducting experiments or simulations. The objective is for students to actively participate in activities that enhance their knowledge and skills.

During practical sessions, it's crucial for teachers to provide continuous feedback to ensure its effectiveness, ensuring that students truly understand the concepts and don't merely mimic actions mechanically. Effective feedback is essential for the success of this method. Teachers should offer students a clear framework or model of activity with well-defined objectives. Students need to grasp what is expected of them and how their performance will be evaluated—for instance, understanding what it means to perform a certain activity effectively and how to achieve the set goals.

Hence, it's vital for teachers to furnish students with practical instructions, motivation, and feedback to encourage thoughtful action. These instructions may involve tasks such as selecting suitable tree seedlings for planting in a specific area, planting trees, constructing riverbank dikes, monitoring water levels, or devising a school evacuation plan.

Teachers may choose to either consolidate key issues under one topic or conversely, break down one topic into different components, depending on the class's level and abilities. For younger students, an effective approach might be having them draw pictures of natural disasters and then analyzing them collaboratively in the classroom before showcasing them in the school, with the teacher's assistance. This method not only helps in understanding natural disasters but also aids in psycho-correction for children of this age group, helping them overcome fear and become more proactive.

In lower grades, instead of delivering presentations on natural disasters, it's advisable to encourage students to express their perspectives through dramatic performances. The teacher can provide a scenario of a natural disaster and assign roles to the students, fostering a more interactive and engaging learning experience.

Involving parents in disaster risk reduction activities

The family serves as a natural setting for a child's development, shaping their future personality through various activities such as learning, work, social interactions, values, creativity, and play. Love within the family, starting from before birth and continuing into adulthood, plays a crucial role in a child's growth, providing a sense of happiness, security, and protection. Parents, acting as respected guides and supporters, contribute significantly to the child's upbringing.

Merely providing information to children is insufficient for their safety; they must learn to apply this knowledge to develop essential skills. Parents play a vital role in helping children acquire these skills through practical education. Therefore, involving parents in disaster risk reduction efforts is crucial. This can be achieved through parent meetings, consultations facilitated by teachers, and engaging activities outlined in educational guides.

Encouraging parents and students to collaborate in analyzing and completing relevant materials, particularly in creating a family disaster plan, fosters a closer partnership between schools and families in ensuring children's safety.

Conclusion

During a lesson the teacher must take into account the following recommendations: the teacher should:

* create a positive, open and creative atmosphere;
* encourage the lesson participants;
* allow students to set the rules of behavior that will be observed by all throughout the process;
* support the positive wishes of students;
* cooperate with each student;
* find out and help to address the students’ concerns;
* help each participant to formulate his/her views;
* answer questions critically and openly;
* use the group’s proposals to improve the teaching process.

It is important to aim that the learning program provides students with a good level of the basic knowledge. The process can be considered successful when it involves all the students in the classroom activities such as discussiona, presentations, etc. Therefore, it is necessary for the head teacher to:

* link all themes to real live examples;
* ask questions that will instigate speculation and creativity among students; avoid giving simple answers like “yes” or “no”;
* give students clear and unambiguous instructions for all actions;
* concentrate on the content of the subject;
* generalize knowledge received by students at the end of each lesson;
* help students to express or group similar proposals and ideas as a one statement.

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## Табиғаттың қауіпті құбылыстары және оларды мектеп географиясында оқыту ерекшеліктері

Бұл ғылыми мақалада оқушылардың түсінігін және қауіпті табиғи құбылыстарға дайындығын арттыру үшін мектеп географиясына оқыту әдістерінің интеграциясы қарастырылған. Онда қауіпті табиғат құбылыстарына байланысты тақырыптарды географиялық білімге енгізуге арналған мақаланың негізгі бағытына шолу жасалады. Сонымен қатар, мұндай білім берудің өміршеңдікті арттырудағы және оқушылардың қауіпсіздігі туралы хабардарлығын арттырудағы маңыздылығы талқыланады. Ол сондай-ақ тәрбиешілерге осы ұғымдарды сыныпта тиімді жеткізу үшін оқытудың практикалық тәсілдері мен ресурстарын ұсына алады. Бұл мақала қауіпті табиғат құбылыстарын мектеп географиясының оқу бағдарламаларына кешенді экологиялық білім берудің маңызды құрамдас бөлігі ретінде енгізуді жақтайды. Жер сілкінісі, дауыл және жанартау атқылауы сияқты оқиғаларды зерттей отырып, студенттер жердің динамикалық жүйелерін қалыптастыратын күрделі өзара әрекеттесулер туралы құнды түсініктерге ие болады. Сонымен қатар, тәуекелдерді бағалау, апаттардың салдарын азайту стратегиялары және оларға дайындықты қамтамасыз ету бойынша пікірталастарды біріктіру студенттерге экологиялық мәселелерді шешуге және оларға жауап беруге қабілетті әлемнің ақпараттандырылған азаматтары болуға мүмкіндік береді. Қызықты, практикалық іс-шаралар мен кейстерді зерттеу арқылы тәрбиешілер оқушылардың сыни тұрғыдан ойлау қабілеттерін және табиғи қауіп-қатерлерге төзімділігін дамыта алады. Жалпы мақалада экологиялық сауаттылықты арттыру, тәуекелдерді белсенді басқаруға жәрдемдесу және планетаны басқаруға шабыттандыру үшін қауіпті табиғат құбылыстарын зерттеуді мектеп географиясының оқу бағдарламаларына енгізудің маңыздылығы атап өтілген.

Кілт сөздер: түсіну, қауіптілік, қауіпсіздік туралы хабардар болу, сыни тұрғыдан ойлау, басқарушылық, экологиялық білім беру, стратегиялар, оқу бағдарламалары

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## Опасные природные явления и особенности их преподавания в школьной географии

В этой научной статье исследуется интеграция методов преподавания школьной географии для улучшения понимания учащимися опасных природных явлений и повышения их готовности к ним. В ней дается обзор того, как статья фокусируется на включении тем, связанных с опасными природными явлениями, в географическое образование. Более того, в нем обсуждается важность такого образования для повышения жизнестойкости и повышения осведомленности учащихся о безопасности. В нем также могут быть предложены практические подходы к обучению и ресурсы для преподавателей, позволяющие эффективно донести эти концепции в классе. Эта статья выступает за включение опасных природных явлений в школьные программы по географии в качестве важного компонента комплексного экологического образования. Изучая такие события, как землетрясения, ураганы и извержения вулканов, учащиеся получают ценную информацию о сложных взаимодействиях, формирующих динамические системы Земли. Кроме того, объединение дискуссий по оценке рисков, стратегиям смягчения последствий и обеспечению готовности к стихийным бедствиям позволяет студентам стать информированными гражданами мира, способными ориентироваться в экологических вызовах и реагировать на них. С помощью увлекательных практических занятий и тематических исследований преподаватели могут развивать у учащихся навыки критического мышления и жизнестойкости перед лицом стихийных бедствий. В целом в статье подчеркивается важность включения изучения опасных природных явлений в школьные программы по географии для повышения экологической грамотности, содействия активному управлению рисками и вдохновения на бережное отношение к планете.

Ключевые слова: понимание, опасность, осведомленность о безопасности, критическое мышление, управление, экологическое образование, стратегии, учебные планы

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