

Discoveries and research in educational practice activities

The acquisition of knowledge, practical activities in the teaching unit

Lívía Hasajová^{*}, Mária Korintušová[†], Ľubomír Verbovanec^{‡*}

Abstract

Investigation of nature necessarily belong to the elementary attribute of learning. Through research activities in their science lessons, for example. Mathematics, Chemistry. Students are given the opportunity to explore nature as a system. Observe mutual transformation and influence of natural storylines. The very kind of activity and investigative character education, allows students a deeper understanding of natural processes and regularities of processes. Science is its exploratory character -activity and teaching allow students a deeper understanding of regularities of natural processes and thus to realize the usefulness of natural science knowledge and its application in practical life. „Students need to learn a lot of information , so the emphasis is primarily on the quality of technology education and the use of new teaching methods and forms and means of teaching and learning.“ (Hrmo, 2007)[§]

Keywords:

Investigative methods, activating methods, business students practical application skills, active learning, interactive demonstration, guided discovery, research driven, committed research, open research, creative approach.

Schlüsselwörter:

Untersuchungsmethoden, aktivierende Methoden, Wirtschaftsstudenten praktische Anwendung Fähigkeiten, aktives Lernen, interaktive Demonstration, geführte Entdeckung, forschungsorientierte und engagierte Forschung, offene Forschung, kreativen Ansatz.

1 Introduction

An inquiry activities may vary depending on the degree of boundness pupil, respectively. Teacher as well as support learning materials. The educational Such activity may promote the development of knowledge and skills of students, and student will be able to correctly use basic terminology, present their knowledge, experience and skills in an understandable way. The prerequisite is to acquire the ability to apply the acquired knowledge in everyday life. In doing so, we emphasize the development of interpersonal relationships, namely the ability to work in groups, to advise and assist others. Last but not least objavovateľskými activities in

^{*} Lívía Hasajová 1, PaedDr., PhD.: Dubnica technologischen Institut, Sládkovičova 533/20 SK - 018 41 Dubnica nad Váhom. E-mail: hasajova@dti.sk

[†] Mária Korintušová, PhDr.: Dubnica technologischen Institut, Sládkovičova 533/20 SK - 018 41 Dubnica nad Váhom. E-mail: korintusova@dti.sk

[‡] Ľubomír Verbovanec, PaedDr., PhD.: Dubnica technologischen Institut, Sládkovičova 533/20 SK - 018 41 Dubnica nad Váhom. E-mail: verbovanec@dti.sk

[§] Hrmo, R.: Students need to learn a lot of information, so the emphasis is primarily on the quality of technology education and the use of new teaching methods and forms and means of teaching and learning.: In Média a vzdělávání 2007, ISBN EAN 978-80-86578-73-6, <http://www.media4u.cz/sbornikmeavz2007.pdf> (2.11.2015)

chemistry, we can peacefully promote the development of pupils' attitudes to science, sciences of learning, learning in general. By teaching pupils at revelatory receive information ready, but looking for solutions to the problem tasks, change their attitudes to acquire knowledge, skills they acquired own active research activities. They form their interpersonal skills , especially strengthened, cooperation in a group, realize the responsibility of the team. Ultimately, using creativity and independence in researching and implementing tasks. The advantage of these methods, as already mentioned, is the fact that students do not get the information ready, but by implementing practical tasks and gain long-lasting mutual communication skills.

2 Hierarchy research activities

Educational activities within the framework of discovering the laws of nature are closely associated with obtaining work skills and habits of working in a professional laboratory. Students have the opportunity to carry out practical activities relevant to the development of their individual practical skills when working with chemicals also develop its conceptual process in their science lessons. The question arises how the use of investigative activities in teaching chemistry alone exploring, discovering within educational programs affect the fulfillment of educational objectives of teaching. For more accurate indication of total hierarchy of research activities (according to the project ESTABLISH , 2010) 1. Interactive Demonstrations 2. Controlled Controlled 3. Discovery research 4. Commitment research 5. Open research. Monitor the success of pupils involved in active operations on lesson , we gradually realize hierarchical educational activities. For the simplest activity is very easy to achieve, even in classrooms with minimal equipment Chemical auxiliaries, chemicals, consider an interactive presentation. By tracking the experimental form pupils prediction, gaining initial ideas discussed. Together with the teacher to formulate joint conclusions. Verification of what was already known through worksheets with clearly defined steps include the concept of managed discovery. Where did the main objective of education is positive, the acquisition of skills of scientific work. When observing, measuring, identifying, collecting and evaluating data. Controlled research normally performed in a traditional classroom or laboratories. According to the instructions on the worksheet, student directs its sole active work while exploring new knowledge itself, learning new skills. He feels the joy of its investigative activities, internal fulfillment of newly discovered natural of processes and phenomena. When bound explorations will not make precise workflow, as was controlled during discovery. New challenges will show the ability of students to use the acquired knowledge and skills. When bound explorations students propose and then seek their own procedures to solution of the problems teachers. The difficulty of assigning the task may not be high, with the task of working with only minimal support from the teacher. We generally describe the activities of these terms: Investigate, identify, specify, observe, measure and so on. „For the correctness of the procedure as well as overall management of the implementation of the proposed research activity is responsible pupil. Open research activity is associated with the need for pupils to find out anything, give present chemical, test the regularity of procedures to measure.“ (Hrdina, 2005)** Or decide on the basis of sound scientific practice. Solution of the problems generally take place over a longer period to prepare for the subject Olympiads, competitions, home preparation, leisure time activities of interest. The general content of the problems of chemistry through an open exploration, is an area of key concepts, chemical processes, skills. Understanding which constitute a prerequisite for the subsequent educational activities in the field of science. With the use of open exploration in the teaching process very closely related to the more time-consuming scientific investigative activities, laboratory management techniques, safe handling of chemicals. The ability to break down the content in your own words and to distinguish essential from non-essential and explanation of the nature in your own words. The taxonomy followed by. Understandable use of general and abstract in given situations. For example, rules, concepts, processes, methods, relationships, laws, principles, theories. Another category of objectives is analysis. Types of final data on components and parts, determining the importance of the principles and organization. Frequently used categories is synthesis. Ingredients to a whole new elements and parts that can plan, manage, process solutions to derive a set of abstract relations. Finally, evaluation assessment is: at this level the student should consider relationships, methods, creations, ideas and the like. Meets the standard or standards in terms of economy, efficiency, effectiveness and accuracy. This assessment can be qualitatively and quantitatively. An inquiry method forces the student to discover the laws of chemistry appeared again experience the joy of the first discovery to be acquired truth became his real ownership. Tasks are trying to break down the revelatory form of problem students individually reflect on science phenomena

and contexts appropriate to examine the mental level, generate hypotheses, find and propose solutions to interpret the observed data, formulate conclusions and arguments. It is necessary that students understand the meaning, purpose and methods of scientific work on cognition examples of natural objects, phenomena and laws of nature. Without that, we reduce the value of the content of the curriculum, it should be noted that at present is in education in science emphasis on action approach. Teachers must teach students in depth by presenting examples and situations from natural storylines in which the concept or phenomenon applies, but also must ensure pupils' acquisition of a sufficient range of important factual knowledge. Using investigative character verification tasks, the teacher can evaluate mastery of learned knowledge and skills.

3 Background and objectives of the research methods in educational practice science

The amount of new information technology progress, the related acquisition of new skills, requires constant innovation and testing new ways to work more effectively with chemicals in the school environment. The actual research students bring a permanent change in their speeches. „When pupils are thinking of new knowledge, seeking answers to the issues raised, based on the active investigative activities gain new experiences, which become the basis of their knowledge“(Petlak,2003). Active research in science is the necessary prerequisite to obtaining fundamental basis of scientific revelatory activity not only in chemistry, biology. When working with chemicals, the student through practical activities, introduces not only the storyline and chemical properties of chemical substances. Shall habits of safe work with chemicals, glassware and laboratory devices. Technical things related to filtration, distillation, separation in a separating funnel, by volume of the fluids, and the like. Working with natural substances. It also acquires skills related to the preparation of simple chemical apparatuses for filtration, evaporation, crystallization, distillation, water and sand bath. Acquires the ability to record in detail the progress of a chemical reaction in the log experiment with drawings of chemical apparatuses, own observations and drawing conclusions itself investigative activities. Form and content, site research activities determines the content of the science curriculum. Significant effect observed within the possible inclusion in the phases of the learning process (Hanuliaková, 2015). With regard to motivation, development of thought or diagnostic capabilities. Based on researching, teaching, learning, understanding as well as a logical process of acquiring knowledge, skills, has essentially engaging them in the discovery of natural laws. Developing critical thinking leads to efficient linking of information into a meaningful context and the link with everyday life. Inquiry- mentioned activities, we follow the motivational effects on students to be heartily engage in direct active operations (Porubčanová, Vojteková, 2014). We also stress the popularization of chemistry among young people, as stunning natural sciences. Where there is still, to discover. Human curiosity compels them to work enthusiasm, always something new to explore, discover. Search charm and fascinating corners of this wonderful natural sciences, such as chemistry undoubtedly is. Other positives include cooperation within the Group, thereby indirectly strengthening the development of social skills of students, the joy of success, internal fulfillment of their own research activities, creating their own unique way. Also here we can include the possibility of immediate feedback. A less positive note we can include the time needed for the preparation of lessons. The teacher must be prepared in advance a large number of validated research activities in order to select the appropriate disclosure of the natural patterns respectively chemical plot, which can immediately react to situations in the classroom.

References

- Hanuliaková, J. (2015). Aktivizujúce vyučovanie. Bratislava: IRIS, 2015. 128 s. ISBN 978-80-8153-036-4.
- Hrmo, R. (2007). Students need to learn a lot of information, so the emphasis is primarily on the quality of technology education and the use of new teaching methods and forms and means of teaching and learning.: In Média a vzdelávání 2007, ISBN EAN 978-80-86578-73-6
- Hrdina, Ľ. (2005). Cesty ku skvalitňovaniu školského systému. In Technológia vzdelávania, 2005, roč. XIII., č. 9, s. 3 – 9. ISSN 1335-003X

Petlák, E., Komora, J. (2003). Vyučovanie v otázkach a odpovediach. Bratislava: IRIS, 2003, 165 s. ISBN 80-89018-48-3

Petlák, E. (2006). Klíma školy a klíma triedy. Bratislava: IRIS, 2006, 119 s. ISBN 80-89018-97-1

Porubčanová, D., Vojteková, M. (2014). Development of emotional intelligence in teacher's diagnostic work. In *Edukacja ustawiczna doroslych*. Radom: Wydawnictwo Naukowe Instytutu Technologii Eksploatacji–Państwowego Instytutu Badawczego, 2014. Č. 14, (2014) s. 315-325 ISSN 1507-6503.

Project no. 001DTI - 4/2015 KEGA draft strategies behavior in difficult social situations in the management of high school using innovative predictive software tools.