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CONTEMPORARY LEARNING APPROACHES FEATURING PUPILS' ACTIVITIES

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Abstract: *The activities that pupils are assigned with in class have a significant and meaningful role in the learning[26] process, thus the selection the teacher makes is essentially important for the advancement of the said process. In line with that, and by means of the analysis of the types of pupils' activities featuring the modern approaches like Learning via Research and Learning via Observing – when teaching the natural science courses content of the curriculum for primary education, the objective of this research paper is to point out that these activities are the core of the educational process and that it is their quality plan and structure upon which successful realization of the course objectives and the in-class learning effects depend. Further on, types of activities feasible to effectuate pupils' learning will be pointed out as well.*

Keywords: *pupils' activities, learning process.*

1. Introduction

Over the past two decades, the educational process in Republic of Macedonia has been marked with a trend of improvements in all segments of its realization in practice. Thus, the mid of the nineties was marked with the introduction of the concept of interactive instruction and in-class active learning, and the following fifteen years – with significant reforms in all

[26]Taking into consideration the fact that the cognitive processes such as memorizing, comprehension, motivation, interest, attention, etc., are psychological categories, their interpretation and detailed analysis are not necessary for the aims of this study. In this study, we only touch upon the real, visible, manifestational changes in the learning process in class resulting from the application of quality and structured activities of pupils.

segments of education. With regard to the educational process realization, over the past five to six years there has been a more intensive approach to working out curricula and strategies for promotion of pupils' researchful, creative, and critical thinking; instructions in accordance with the a/s curricula and strategies should make pupils entirely active participants in the learning process.

Therefore, it is the teacher who has a very important and prevailing task set in front of him/her today – the selection of quality[27] types of pupils' activities in accordance with the objectives and course content, yielding with realization of those objectives with the optimum conditions for pupils' active participation in class. Thus, pupils' activities in the learning process, including those developing the cognitive competences with pupils in the natural sciences – i.e., the ones in our research focus, can be numerous: observing, receptive, responsive, assessing, creative, evaluative, etc. Further on, with the essence of the nature sciences courses content in mind, in the center of our analysis we place the approaches *Learning via Research* and *Learning via Observing* as ones offering the optimum for active participation of pupils in the learning process, as well as the types of pupils' activities feasible within the frameworks of these two approaches.

Thereby, the main objective of this paper is to analyze the types of pupils' activities within the frameworks of contemporary learning approaches in accordance with the realization of the primary education curriculum for nature sciences courses content (*Becoming Familiar with the Environment*[28]) in order to highlight the fact that pupils' activities are the very core of the educational process and that it is the quality of those activities upon which pupils' active participation in the learning process depends (Havelka, 2000: 67), which also conditions the successful realization of the instruction objectives as well as the learning process results.

[27]Adequately selected and well organized activities, which should be compatible with the lesson objectives and with the course content.

[28] As of the school year 2014 – 2015, Cambridge Elementary School Syllabi for pupils from first to third grade – i.e., natural sciences subjects with contents from the areas of scientific research, biology, chemistry and physics, were introduced. In this study, we refrain from considering the new Syllabi, as the focus of our research is on students' activities and their significance for enhancing/effectuating their learning process – an important issue at the time when this research was being conducted.

2. Analysis of the activities in *Learning via Research* (LR)

The theoretical grounds and findings regarding the concept of the instruction featuring Learning via Research (LR) emerge from the constructivist theories of learning and from the stands of Piaget and Bruner (Pejchinovska, 2015: 109 – 112), who primarily accentuate the applicability of knowledge acquired by active inclusion of the pupils in the learning process. The actual LR in class encompasses the elements of scientific research and the laws of the process of thinking.

In the teaching methods literaure the design of LR class is directed to the relation *problem –solution*, and the frequent use of the concepts research, research process, learning via solving problems, etc. In this section analysis of all those concepts are not included, and the term i.e. abbreviation LR used in this paper refers to the organization of the instruction to be performed in gradual methodological steps – designed by the teacher, for the pupils to encounter a problem situation the solution of which requires their sharp thinking and active involvement in activities such as study of resources, individual research work towards finding solution to the set problem situation by applying (simple) scientific methods, research procedures (observation, experiments, case study, survey, etc.), instruments, didactic tools, etc. Thus, LR embodies logical thinking operations on collected data (analysis, synthesis, generalization, abstraction, induction, deduction and alike) which are proceeded by drawing conclusions and balanced viewpoints regarding the research, as well as by interpretation of the results obtained in the course of the logical thinking operations, and finally the statistical processing of the set problem situation. From the aspect of the issue of our research it is important to state that LR activities enable pupils experience hypothetical situations and their problem solving in order to become capable of successful coping with them in real life. It is the cognitive dimension of LR which activates pupils' intellectual capacities to learn to think critically, to discern the essence of the research problem, to search for answers to their questions, and to cooperate when learning via LR. In the instructions of *Becoming Familiar with the Environment*, and *Nature* (BFWE, N), LR is a largely corresponding approach for promotion and development of team work, leadership, entrepreneurship spirit, open-mindedness to changes, communicative skills, critical thinking, etc.

When training the pupils to apply LR in class, and to acquire the basic skills necessary for research and learning via research, the teacher should generally pay attention to the following dimensions of LR: *introducing the pupils with the core of the problem to be researched* and *with the research process* and *training them to do a research*, (Kolondzhovski, 2001: 38 – 39).

In order to achieve the desired effect in class in which LR is applied, it is necessary that the tasks are performed highly responsibly by both the teacher and the pupils. For instance, the teacher *plans what cognitive, affective, and societal skills to develop* with the pupils practicing LR (for example, ability to make clear comparisons between phenomena, processes, and the objects of the geographical surrounding; capability for team work, etc.); *selects which metacognitive skills* are to be developed with pupils (motivating them to take into consideration LR, and navigating them in the evaluation of efficacy of methods which would improve LR); *contemplates the type of the problem he will set for the pupils to solve* (to train them to research; to apply simple research methods); and *decides on the concepts and principle he/she would offer to pupils to apply* (the basic principles of ecology and environment protection in their life and to discern the relations between causes and effects), Herman, Aschbacher, Winters (*Select or Design Assessments that Elicit Established Outcomes*, 1992).

In line with this, when planning pupils' activities for a class with an LR approach, the teacher relies upon the following questions: *Which objectives do I want to achieve with the LR approach* (knowledge acquisition, skills development)?; *Which criteria should I use when making the research groups*?; *Which questions should I use to induce the pupils to research activities*?; *Which resources will they need*?; *How to prepare them to embark on the research activities*?; *How shall I navigate their work?*

The types of pupils' activities within LR are primarily perceptual-motor activities, observing, receptive, resoning, discovering, researching, assessing and evaluating, or more specifically formulated – pupils taught via LR approach can perform the following activities: *researching; perceiving; comparing; contemplating and coming up with ideas; searching for and offering solutions; cooperating with one another and with the teacher; analyzing; applying previous knowledge to new situations; learning from experience; using a variety of resources; evaluating their own work; solving problems, etc.*

3. Analysis of the activities in *Learning via Observation*

The activities of a planned and systematically organized observation – either direct or indirect, (the latter of which – by means of visual tools) are an exceptionally appropriate classroom instructional mode of learning the natural sciences course content.

Observation is an activity which involves a sense-based experience and theoretical reasoning by drawing one's attention to the objects and phenomena to be cognized. When an organized cognition activity is in progress via observation, the one observing should precisely know *what to observe* (a single object, phenomenon, process, or a series of related objects, phenomena, processes), *the reasons for observation* (for example, finding the relative features of the objects, phenomena, and processes), as well as *which of the characteristics of the objects, phenomena, and processes are relevant for the results of the observation to be regarded as valid and applicable.* With these aspects in mind, the teacher has a highly responsible task – to make the observation an *active*, *intentional* and *organized* activity. Before beginning the observation, the pupil should know *what*, *where* and *how long* he/she will observe, (Adamchevska, 1996: 173). The first question refers to the object of observation and the purpose of observing the object which can be anything that can offer cognition: geographical object, relief and relief forms, climate, climate phenomena and changes, other phenomena and relations, etc.

The observation of the objects, phenomena, and processes is best when organized and performed *in field*, where the natural environment would be the source of cognition; this could be a nearby grove, meadow, or pool and the fish in the pool, industrial objects, etc. If there are no conditions for observational activities in field, the visual method is applied (demonstration and illustration) by means of classroom visual tools – sketches, charts, photographs, movies, models, maps and alike, accompanied with the verbal method (oral presentation and exposition by the teacher, discussion, text reading, etc.).

The observation of phenomena and changes in the environment frequently entails certain activities such as *drawing*, *sketching* and *making notes*. The drawing activity has a positive influence on the development of conceptual thinking (conceptualization) because the one drawing has to analyze the object of drawing and see its component parts, and combine them into a coherent whole. By *making notes* in the course of observation, which most often have the form of descriptions or a report, pupils express their understanding of the objects, phenomena, and processes, their characteristics, states and forms, as well as the cause-and-effect relations among those objects, phenomena, and processes.

When organizing the observational activities, the teacher has to draw pupils' attention to the aspects of the purpose of observation. Adamchevska points out the aspects which characterize the object of observation:

appearances – colour, size, form, height; *function* – role, effects, action performing and alike; *location* – site, site relation to other objects; *connection* – dependence on other objects; *structure* – construction, component parts, their connection; *purpose* – use, usefulness for people; *human factor* – role, conditionality, influence, and etc., (Adamchevska, 1996: 175).

Activities when observing pictures, sketches, and charts (diagrams) – Visual objects are the items, pictures, charts, slides, and all the things that can be observed by the sight sensory organs. The importance of the pictures, sketches, charts, and the other visual objects is huge.

Pictures are the most utilized visual objects in junior classes. The principle of visual aids in instruction, which is most necessary in the natural sciences course, makes the pictures essential and the most significant of all the visual aids, and highly important in the process of becoming familiar with the environment. In line with this, the thematic pictures are most convinient when the objective is forming correct ideas: pictures of relief forms, water flows and elements, seasons of the year and their features, etc.).

Some of the more significant characteristics of thematic pictures in the process of learning are the following ones: they provide the sense of a direct experience; they emphasize the elements important for the content being taught; they give the opportunity for a variety of activities such as describing, comparing, distinguishing, evaluating, etc.; they serve as an aid for checking the accuracy of the ideas and concepts formed (Itković, 1997: 131).

Photographs are pictures always relating to facts. They accurately present the objects, phenomena and the relations as they used to be or still are in the reality. Photographs offer numerous activities convenient for junior pupils, especially for the first-grade pupils. Junior pupils can grasp the point more easily by means of photographs and thus form clear ideas and concepts. Some of the activities that photographs aid are: describing, discussing and vocabulary development by labeling those photos in which objects, phenomena, and processes have been identified; giving titles to the photos for their easier generalization of concept; observing the photo under the instructions of the teacher to differentiate the elements of location in the front, in the centre, in the background, on the left and on the right, by using the verbal formulations such as *close to*, *far from*, etc.; placing the titles of the photos next to the corresponding photos; describing the black-and-white photos regarding the colours of the objects presented (on the grounds of their experience, pupils can tell the colour relying upon the facts and features of the objects in the photo).

Having seeing the photos, the pupils have a more difficult series of activities to do – collecting information and interpreting it, which imposes discrimination of essential elements and their categorization and comparison. At this stage, the teacher is supposed to help the pupils in grouping the photos in classified collections successfully (local/non-local, likes/dislikes, animal/not an animal, etc.) as well as in their argumentation in support of the classification they have made. For instance, the teacher points at postcards depicting certain objects or plants or animals and asks the pupils to classify them by placing them under the titles of the corresponding category written on the board or on a poster; further on, under the surveylance of the teacher, the pupils line the pictures in a logical sequence by which a certain story is told; they also line the photos of local shops according to the distance of the shops from the school – they begin with the closest one and end the series of photos with the one of the most distant; they make sequenced set of photos of a river from its spring through the mouth of the body of water that it flows into, etc.; they group the photographs again and again, creating a panorama of the relief of the surrounding terrain or of the town (determining the key objects in the photos, writing a subtitle underneath to tell the essence of the photo, etc.); grouping the photos of the same objects and commenting them (for example when a building is photographed from different angles and height or when the countryside is photographed in different seasons of the year; they converse and make judgments on the size and distance of the photographed objects; they use comparison and generalization to cope with photos of complex or unfamiliar theme; they create a legend for identification of the key objects; they name, mark and colour elements in the photo or in the draft of the photo so that they can read it; they try to take photographs on their own and use them in the practical activities, etc.

In the course of instruction with these visual aids, the teacher should initiate pupils activities with the requests: *Describe…!*; *Research…!*; *Explain…!*; *Classify…!*; *Make a judgment…!*; *Evaluate…!*; *Apply…!*; etc.

Illustrational maps are a kind of combination of ordinary photographs and classical maps of certain places. The illustrated maps should help pupils to understand the content more easily – that is to say, to make pupils' reading and interpretation of the maps easier. With these maps various pupils' activities can be planned for their easier perception and understanding of the two-dimensional illustrations presenting three-dimensional objects from the geographical surrounding. There is a wide choice of most different types of illustrated maps – from ordinary drawings, with photos of objects inserted, to 3-D animations of the main objects and landmarks. In many countries illustrated atlases are made and offered as important and useful visual aids for learning.

Signs, symbols and labels are also components of numerous activities designed to help pupils in orienting themselves in the local environment and farther away. Thus, at the teacher's initiative, pupils make and place road signs, marks, and symbols displaying or denoting certain directions or distance to objects in the school campus, or sign posts on the playground indicating direction and distance from the closest objects of importance (center of the town, neigbouring schools, etc.), or they simply invent symbols by which to label and mark the equipment kept in the classroom, and collect newspaper weather figures and information from the TV weather forecast in order to design their own weather forecast symbols and charts and make their own weather forecast. *The schemes (graphs)* are different graphic pieces of information and drawings combined together in a visual and logical presentation of various relations and comparisons necessary for classification of phenomena and monitoring the development of a process (for example, the circular movement of the water in the nature and alike). Pupils' skills of *observing* and *reading* the schemes and graphs have to be developed and be as good as their skills for photograph reading. The best way for developing these skills of reading the two-dimensional representations of three-dimensional constructions and objects is via games, by assembling toys out of paper or cardboard.

A type of scheme very significant in coaching pupils to read, use, and make maps by themselves is the *sketch.* It is a highly concise content of the aspects of the environment presented with rough drawings and notes. The sketch making largely depends on the ability to generalize and discriminate the key objects.

From what we have stated above, we can conclude that natural sciences instruction cannot be imagined without pupils' activities of systematic observation in both the classroom/school campus and in the local environment as it is the very mode in which the optimum of cognitive, psychomotor, and socio-emotional development with pupils is achieved (Pejchinovska, 2015: 129 – 136)

4. Research Methodology

The research conducted is a part of an action research realized with the objective of advancing pupils' learning process in the primary education instructional classes of the BFWE and N by applying quality activities for the pupils. The objective of the subject researched is a survey conducted to investigate pupils and teachers' stands and opinions regarding the specific

types of observational learning activities and research learning activities applied in the course instruction; the visual and other teaching aids applied in the course instruction and their significance and role in the realisation of pupils' active participation in the course classes. The sample of interviewees was selected from 9 elementary schools in the urban and rural area of the t. Bitola, R. Macedonia, and it numbered 315 third and fourth grade pupils and 35 teachers of third and fourth grade.

In order to access data on the type and quality of pupils' activities within the framework of planned and systematically organized courses instruction and pupils' learning via observation and research, systematic observation and observation protocol have been applied in the experimental groups[29] (Pejchinovska, 2010: 143 – 145) and in the control groups in order to note down the extent to which teachers stick to the planned activities of learning via observation and research; how much pupils following this type of organized learning and instruction understand the specific objectives of observation/research; the place/location where the activities are to be performed; time length/duration of the activities; how interested and motivated pupils are; and the meaningfulness of the questions posed by the teachers to navigate the pupils toward the right aspects of the objective of observation/research.

The obtained data are quantitatively and qualitatively analyzed whereas the quantitative outline is made upon determining the percentage and the mean value.

5. Interpretation, analysis and discussion over the research results

5.1. Interpretation of the results of the questionnaire for the pupils

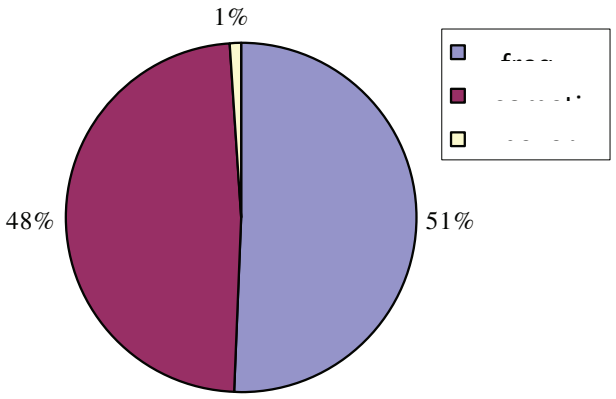
Regarding the question of the extent to which the specific types of audio-visual teaching aids are used in the BFWE and N courses when the instruction is realized via observational activities, the answers obtained with the questionnaire show that pictures are used most often – 74%, then realias –

[29]The sub-sample, with 12 class models and an experimental factor in the form of specific types of activities introduced in each class model, consisted of 80 pupils and 6 teachers from elementary schools from the urban area of the town of Bitola. Within the experimental groups, the dependent variables were measured prior to, in the course of, and after the application/use of the experimental factor, whereas in the control group the customary teaching procedures were applied.

57%, object models – 36%, diagrams – 15%, photographs – 8% and movies – 7%. It is striking that film clips/movies are least used as an activity in class when instructing these two subjects – 55% of the interviewees have never watched an instructional movie, next are photographs – 34%, diagrams – 28%, object models – 15%, realias – 3% and 2% of the interviewees have never used pictures.

The answers to the question regarding the extent to which drawing activities or the activities of making pictures, graphical presentations, object models, posters, and sketches are practised, show that in the BFWE and N courses instruction the most frequent activities are drawing pictures – 75%, poster making – 39%, sketching – 39%, making models – 30% and making graphical presentations – 17%.

The answers to the question regarding the extent to which observational activities are perforemd outdoors show that in the BFWE and N courses instruction observation in field is frequently performed – 51% (Figure1).



The answers to the question show how content pupils are, and to what extent the classes of learning via observational and research activities performed outdoors hold their attention, 64% of the interviewees – i.e., 226 pupils answered that those classes were always interesting.

With regard to the questions whether there are resources in terms of stationery and equipment for successful performance of the observational and

research activities in BFWE and N courses instruction, 40% of the interviwees – i.e., 116 pupils answered that they frequently used the measuring rod, magnifying glass, ruler, watch, compass, thermometer, geografical maps, etc., 53% of the interviwees – i.e., 156 pupils answered that they used the stationery from time to time, and 7% - i.e., 21 pupils answered that they never used the stationery in the organized BFWE and N instructional activities of obsevation and research because they couldn't afford none of the devices.

With regard to the questions about the priorities of the pupils when in BFWE and N classes and what they found interesting, the answers of 47% of the interviwed pupils show that they found most interesting the observation of pictures or objects in the Nature; accordingly, that way of learning most successful; 18% – drawing the objects of the envronment; 18% – the activity of making models; 17% – the research activities outdoors.

5.2. Interpretation of the results of the questionnaire for the teachers

With regard to the question about the extent to which observational activities are performed outdoors, a larger percent of the interviewed teachers answered that BFWE and N classes were sometimes held in the school yard or in the neighbouring surrounding for the purpose of observation.

With regard to the open-ended questions posed to the teachers as to whether they thought BFWE and N classess could be more frequently held outdoors – i.e., in the neighbouring surrounding, and to list both the benefits of frequent outdoor systematic observational activities in BFWE and N instruction and the obstacles to their realisation, the answers suggest that the direct visual contact with the environment, and with the Nature around, the increased interest and motivation of the pupils are the benefits due to which frequent outdoor observational and research classes are desirable. The serious obstacles to the realisation of the a/s outdoor classes listed in the teachers' answers are: weather conditions, funds, the distance from the object to be observed or researched, overloaded syllabuses, and lack of time for performing the activities of observation and research.

With regard to the question about the importance of the visual teaching aids in learning the taught course lessons, 77% of the interviewed teachers find them highly contributing to the learning process.

The question regarding the facilities such as stationery and equipment for successful performance of observational and reasearch learning activities in the BFWE and N courses instruction, 34% of the interviewed teachers stated that they frequently used the measuring rod, magnifying glass, ruler, watch, compass, thermometer, geografical maps, etc., 60% of the interviewed teachers – from time to time, and 6% of the interviewed teachers said that in the BFWE and N courses instruction they never used the listed stationery pieces because they had none.

The question about the extent to which the research procedures applied in the BFWE and N courses instruction contribute to the successfulness of the cognitive process – i.e., make the learning process more effective, 60% of the interviewed teachers find these procedures highly contributing to the learning process.

The answers to the question about the activities which prove best for pupils' learning in the BFWE and N classes show that 22% of the interviewed teachers thought pupils learnt best when following techers' demonstration; 21% – when doing research activities; 21% – when observing; 15% – when being given explanations; 13% – when there are organized activities in field; and 8% – when there are organized illustrational activities.

With regard to the question as to whether the illustrations in pupils' textbooks were covering the needs for observational learning of notions about objects, phenomena, and processes in the Nature and in the society, the largest percent of the interviewed teachers – i.e., 57% of them answered that those could do but with some additional illustrations used in class, and 37% of them answered that the illustrations given in the textbooks were definitely insufficient.

5.3. Interpretation of the results of the systamatic monitoring of the instruction activities in Learning via Research and in Learning via Observation

The data obtained with the monitoring protocole show efficacy of the activities in planned and systematically organized *Learning via Research* and *Learning via Observation* approaches.

The results of the systematic monitoring also show larger efficacy of the planned and systematically organized research in the natural environment, and a more effective cognitive process in class due to quality activities in the research procedures. Thus, the results derived from the monitoring show that organized research procedures – with quality activities designed for the pupils to take part in in the nearby natural environment, improve the quality of the acquirred knowledge (of notions and concepts of objects, phenomena, and processes).

Table 1. Results of the systematic monitoring of pupils' and teachers' activities in Learning via Research

Groups		**E**	**C**	**E**	**C**	**E**	**C**	**E**	**C**	**E**	**C**	**E**	**C**
Categories	**Grades**	**1**		**2**		**3**		**4**		**5**		$\overline{X}$	$\overline{X}$
1.	In class teacher sticks to the protocol/plan for research realization				1		4	2	1	6	2	4.75	3.50
2.	The research subject is clearly defined							1	4	7	4	4.88	4.50
3.	Time and location for the research activities is precisely set (the research is conducted in field)		1			1	1		3	7	3	4.75	3.88
4.	The teaching aids serve thepurpose of the research (visual aids and other)		2	1	1		2	1	1	6	2	4.50	3.00
5.	Teacher's questions are clear and navigating towards realisation of tasks					1			3	7	5	4.75	4.63
6.	Pupils are happy with the research in field		1		1		2	3	2	5	2	4.63	3.38
7.	Pupils are active (showing interest, asking questions, feel motivated, etc.)		1		1	2	2	1	3	5	1	4.38	3.43

Table 2. Results of the systematic monitoring of pupils' and teachers' activities in Learning via Obsrevation

Groups		**E**	**C**	**E**	**C**	**E**	**C**	**E**	**C**	**E**	**C**	**E**	**C**
Categories	**Grades**	**1**		**2**		**3**		**4**		**5**		$\overline{X}$	$\overline{X}$

1.	In class teacher sticks to the protocol/plan for realization of observational activities				1	2	10	6	11	23	9	4.68	3.90
2.	Pupils' tasks are clearly defined						4	8	10	23	17	4.74	4.42
3.	Pupils have clear idea of the object to be observed **– they know what is to be observed**				1		4	5	5	26	21	4.84	4.48
4.	It is clearly determined where the observation will be performed (its realisation is in field)		1				2	4	6	27	22	4.87	4.55
5.	Teacher's questions are clear and navigating towards realisation of the specific objectives					3	3	2	12	26	16	4.74	4.42
6.	Observation time-length is within the planned time frame (15-20 min.)				7	1	7	9	6	21	11	4.65	3.68
7.	Pupils are active (showing interest, asking questions, feel motivated, etc.)				5	3	7	6	8	22	11	4.61	3.81

As the results displayed in the field *cathegories* in Table 2. show, in the realization of planned and systematically organized activities of observational instruction for BFWE and N courses, the experimental group produced higher means than the control group.

The results of the survey questionnaire and those of the systematic monitoring, as well as the ones of the theoretical analysis of the problem in focus of pupils' learning via observation and research activities in the natural sciences course instruction, assert the importance that quality *research* and *observation* learning activities have in the learning process, (Pejchinovska, 2010: 148 – 161). In this sense, the identified states can be defined as four key points concluded about the cognitive process and the learning process with these learning approaches applied in instruction: *1. The quality, systematic, and structured observational activities of pupils of an intelligently selected subject of observance yield with pupils' successful discrimination of the essential elements of objects, phenomena, and processes observed and, accordingly, better achievements in learning*; *2. The courses in natural sciences with the instruction designed to apply quality and structured pupils' research activities aiming at identification, comparison, analysis, synthesis, and conclusion, make the notions and concepts formation more effective; 3. The courses in natural sciences with the instruction designed to apply quality and structured pupils' learning activities in field (the real natural and*

societal surrounding) yield with higher quality of acquired knowledge; *4. When quality, systematic, and structured activities are applied in the observation of visual aids (pictures, sketches, schemes, illustrated maps), the notion and concepts formed are clear and serve as foundation for further generalizations.* In that sense, the general conclusion that can be drawn is that the selection and application of quality and structured pupils' activities improves the quality of the acquired knowledge, and, accordingly, the pupils' overall and general achievements in the said courses.

According to the analysis results of the protocols for systematic monitoring of the activities, pupils improved achievements result from the strong relations between the research in field on the one side, and the pleasure, interestedness, and motivation with pupils initiated in the contact with the objects, phenomena, and processes, on the other side, as well as with the application of visual aids and other teaching aids for successful realization of the course syllabus. Further on, the data obtained from the monitoring protocols show that pupils achievements depend on their interestedness, activities and motivation (Pejchinovska, 2011). Moreover, all the efforts put into organization of activities for pupils to be instructed via these learning approaches result from the need for high level of efficacy in the teaching-and-learning process, which would be – as the results show, reached by active pupils' participation ensured via these learning approaches in everyday learning.

One more point to add in regard with this research is that in the classes monitored for the learning process and activities there were qualitative types of activities included among which the perceptual motor activities, the receptive, the observational, the discovering, and the researching activities of pupils.

Conclusion

At the end of the instructional class or of the series of instructional classes, pupils' quality activities indicate both the quality of the realization of the set lesson objectives and the success/failure of the learning process designed for in-class instruction of pupils. As the results of the survey and the systematic monitoring show, pupils' activities such as drawing, discerning, underlining, comparing, labeling, classifying, etc. – organized in the *Learning via Research* and *Learning via Observation* approaches, improve pupils' school achievements, that is to say, the quality, structured, and systematic activities along with the didactic-methodological solutions to

successful realization of pupils research and observational activities yield with pupils' successful achievements in the realization of their assignments. The quality activities of these modern approaches provide the motivational atmosphere which ignites pupils' interest and pin their attention onto the researched/observed issue, which largely conditions the extent to which problem situations will make the process of cognizing objects, phenomena, and processes in a natural surrounding effective, and accordingly, will induce the improvement of pupils' achievements.

Thus, a significant bond is confirmed to exist between the quality types of pupils' learning and the learning process effects – i.e., the types of the natural sciences course activities to be performed by pupils when learning via research or via observation lead to successful realization of the instruction/ lesson objectives and to better learning process effects only if activities accord with the course objectives and syllabuses.

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