TECHINCAL DAYS FOLLOWING THE MODEL PUD-BJ »FROM IDEA TO PRODUCT«

DIDACTIC-EDUCATIONAL TOYS

Nina ES

Abstract

Modern nine-year elementary school has to provide equal conditions for gaining different types of knowledge and optimal opportunities for a complete development of the individual for every pupil. Teachers use different teaching approaches, which contribute to lesson quality and lessons that are friendlier for pupils.

One of the modern ways to gain quality education is the project-learning work. A theme-problem approach is typical for the project-learning work, because the themes are taken from the everyday life. Activities are planned in advanced in detail, the pupils themselves implement the activities and the teachers mainly guide the educational process. The pupils learn from their own experiences, which increases the quality and durability of gained and adopted knowledge.

Following the model PUD-BJ, we have gathered creative ideas and carried them out by creating didactic-educational toys, which can assist teachers and pupils in learning. The creations vary in levels of difficulty and can be created in schools at technical days, at teaching technics or at technical activities clubs. They require the acquaintance of using different tools, utilities and natural materials, and moreover, they stimulate the development of various skills of pupils.

PROJECT ARGUMENTS

In the presentational project we focused on creation of wood products and wood semi-products. Although the material is natural, the accessibility of it in well supplied stores, with technical departments, can be a financial burden; therefore it is advised to cooperate with various craftsmen (joiners, carpenters, furniture manufacturers) and gather wood leftovers and leftovers of semi-products that would be thrown away otherwise. We can provide the further usage of these leftovers. This is what makes the project interesting, pupils acquire different experiences, skills, knowledge about natural materials and their usage. Moreover, they learn about environment conservation and respect towards the natural materials.

The purpose of creating a product is to get acquainted with project-learning work in practice, to demonstrate and to test unlimited options using natural materials, recognize and learn to handle the various tools and instruments. Moreover, it is important to prove that with this work method the planed objectives are realized and kept as a lasting knowledge at higher level then would be kept in a standard lesson.

INTRODUCTION OF THE PROJECT

Toys draw attention, no matter what age we are. Although the toys have changed through centuries, many of them have stayed, more or less, the same. The differences can mainly be found in materials and the manufacturing techniques. In the past the wood, as a natural

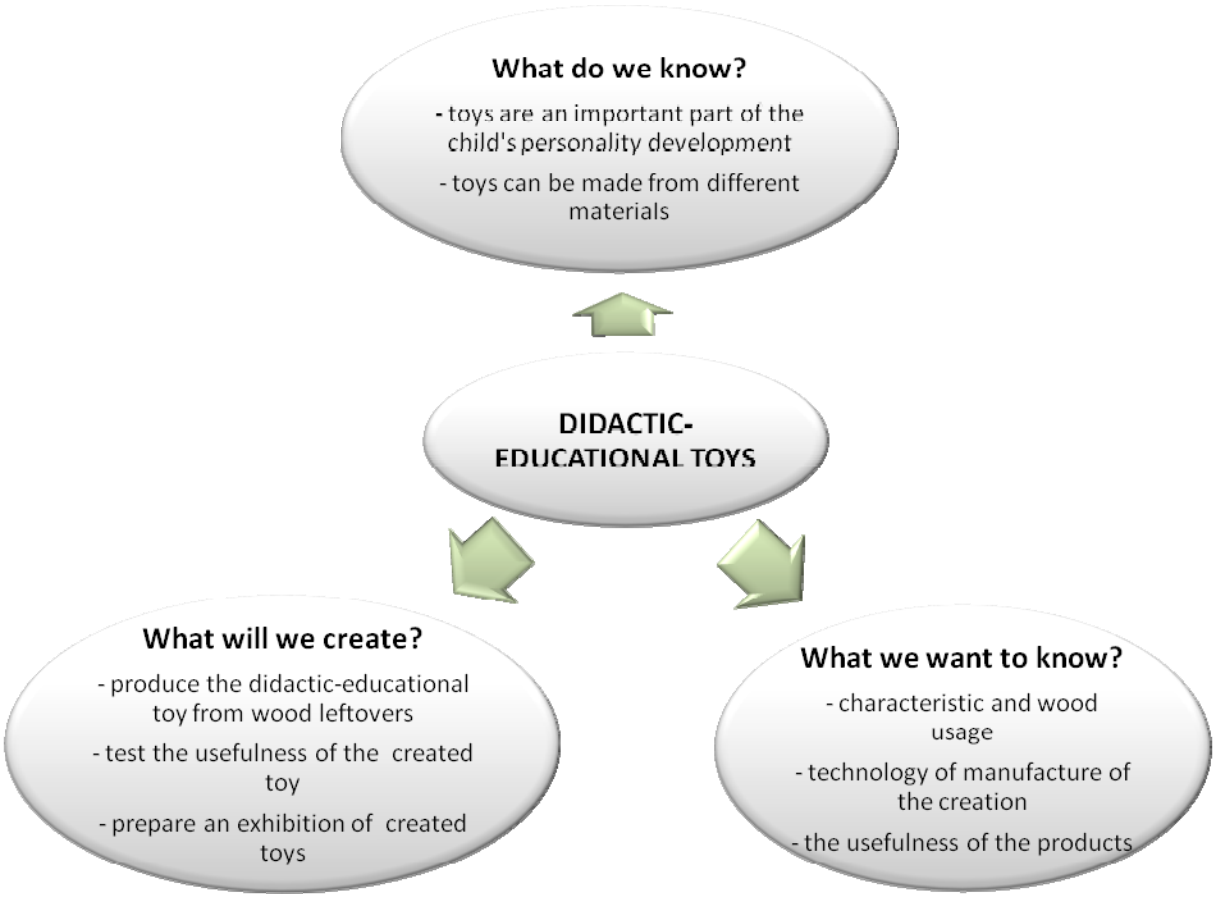
material, was used in many ways by children and adults, who made the toys themselves. Even craftsmen made a toy here and there and sold them at fairs.

Today market is filled with toys made of different materials, but the most popular are still the wooden toys.

Ideas for wooden toys can be found everywhere; the main problem is purchase of the materials. The purchase can prevent realization of pupils' creation, because some materials are too expensive for schools and are less accessible. Therefore, we are presenting the toys made of wood leftovers and leftovers of semi-products, which are accessible and still appropriate for creation and handling and are environmentally friendly. The work is not always finished with final product. Every toy has its purpose, for which it was made, and pupils will test it and therefore confirm, if the toys serves its purpose. With the toys made, the exhibition can be prepared in school's lobby.

MACRO PREPARATIONS OF MODELS PUD-BJ

Macro preparing is made by pupils with a teacher's help, and it represents a draft of the work. The rules and objectives are set, they exchange thoughts and ideas, and together they find answers to given questions: what they already know about the theme, what they wish to know, and what will they create. Macro preparation is made on a large piece of paper or a poster and is put on the visible place.



Obr. 1

MICRO PREPARATIONS

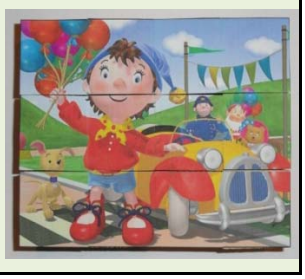
Micro preparing requires work planning and handing out assignments. Members of the project prepare in detail the implementation plan with assignments, with which they will accomplish the objectives.

	1st partial activity	2nd partial activity	3rd partial activity
	VISITING THE CRAFTSMAN	**MAKING THE CREATION**	**EXHIBITION OF THE PRODUCTS**
WHAT?	- visit a man who deals with domestic handicrafts - presentation of the machinery, tools, instruments - the display of the manufacture of one product	- the collection of various materials - identify the differences between materials - design technology of creating - making the product	-arranging the room - preparation of the exhibition - evaluation of the products - inviting parents, friends on a tour of the exhibition
HOW?	- by listening, - by asking different questions - by observation	- with the exploration - with your own creativity - with the help of the teacher and pupils	- with its own work - with creativity - with the exhibition of creations
WHERE?	- in the handicraft workshop	- in the library - in the classroom	- in the school lobby - in the school hallway
WHEN?	- during the days of activities - in the context of technical clubs	- during the technical days	- during the technical days - at open doors days - at exhibition or celebration
WHO?	- pupils - primary teacher - craftsman	- pupils - primary teacher - other pupils and teachers - librarian - caretaker	- pupils - primary teacher - other pupils and teachers - parents and other visitors
WITH WHAT?	- with wood - with different technical instruments and tools	- by posting material (magazines, video material, internet) - with the various technical devices and tools	- with practical products - with posters and photographs
WHY?	- to learn about the importance of the handicraft - to become acquainted with the different technical tools and their proper of use - to see the creation of a product	- to learn about the materials, their applicability, strengths and weaknesses - to get to know different tools - to develop skills, abilities - to make your own product, suitable for use	- to show pupils, teachers and other visitors, where we were, what we made and what we learn during the course of the whole project

PROJECT REALIZATIONS

Project-learning work can be implemented on activity days (technical days) or on other days of technical activities. The preparation demands a thorough teacher's preparation. The teacher is guiding pupils through the learning process in the direction to accomplish the educational objectives and assignments that were set at the beginning of the project. During the course the teacher encourages, guides and helps the pupils to implement the activities and students gain the knowledge and comprehension through their own activity. The teacher offers the indicative theme or a key word. The pupils consult each other and express their ideas, among which they choose the most appropriate one. Furthermore, they prepare the plan to achieve the realization of this idea and gather the materials and tools. The teacher forms working groups and gives instructions. The pupils in groups make an agreement about course of the work and make a detailed plan. Work is done in defined phases and safety rules for tool handling must be followed.

Technology of creation: Nodi Jig-saw

1st stage		2nd stage	
The rod is measured out a 12 x 40 mm and the line is drawn with the pencil. We saw the rod over the drawn lines to get cubes. Cubes are handled with abrasive paper.		Than we take plywood and cut it in 4 rectangular panels – 2 smaller (120 x 45 mm) and 2 larger (180 x 45 mm) panels. We also cut one main panel, the dimensions is 160 x 120 mm.	
3rd stage		**4th stage**	
We assemble all 5 parts in a small box where we will store the cubes. For good fixation we need a couple of nails and glue for wood.		We search the internet for one cartoon image that we like. Than we resize the image in 120 x 160 mm dimensions. Be careful! We need 2 identical picture – one for the cubes and one for the bottom of the box.	
5th stage		**6th stage**	
On one copy of the image we draw grid lines on the back side. Grid lines must be cube's size. Each grind space is labeled with the number. When we have all numbers from 1 to 12 we can cut the image over the drown lines.		Each part of the image is pasted on a single cube. We repeat this as long as it takes to have all cubes plastered. Now we can try to draw up a jig-saw.	

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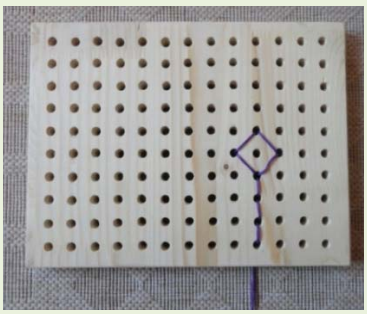
Finished creations


Picture 1: Duckling


Picture 2: Pinocchio

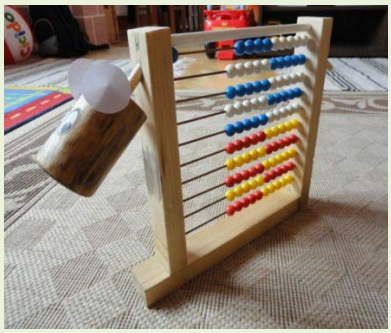

Picture 3: Colorful thread


Picture 4: Creating with lamps


Picture 5: Maze


Picture 6: Memory with mini bears

Picture 7: What's the time?


Picture 8: The abacus


Picture 9: Domino with Krtek


Picture 10: Wooden mini computer


Picture 11: Ludo game


Picture 12: Happy ball

Obr. 3

CONCLUSION

The project-learning work has all characteristic to exceed the classic lessons that focus on the teaching content of one subject. Priority of the project-learning work is certainly the final product, which is a concrete thing, and not just the knowledge gained. With it, the pupils, the class or the school can present their work to other classes, teachers, parents or schools. That strengthens pupils´ self-confidence and pride, because they are receiving praise inside and outside the school walls. The product made is usually multi-purposed – for both, pupils and teachers.

With this working method the continuous activity and the autonomy of school pupils is gained through the entire process of creating, gaining experience, skills and knowledge from different fields, which are intertwined and complement each other. The project learning work is usually carried out at the technical days, although technical days are no longer just technical day, but also the cultural-natural sciences-engineering days. They cover the contents of all three fields of activity days: both cultural as well as the sciences and engineering. The pupil learns through the experiential learning more things at the same time, which allows him not only the link between the different skills, but also the transfer of knowledge and experience in other similar situations in daily life.

Although we have mentioned many advantages of the project-learning work in school, the school organization is not in favour of such "active" work. The extent of the project learning work in elementary school, therefore, depends on each school individually. Some consider it as a good learning system for gaining the knowledge, and some still consider the classical form of lessons and activities. We hope that project learning work in Slovenian elementary schools will receive the place that belongs to it, that the pupils would be able to express themselves to develop and grow in their own way. I hope that the project-learning work will no longer be only the desire of individuals but the everyday practice of teachers.

ENCLOSURE

Picture 1: Xylophone

Picture 2: Pillar and rings

Picture 3: Perforated domino

Picture 4: Colorful bowls

Picture 5: Fingers dolls

Picture 6: Mini wooden books

Picture 7: Creating with a hammer

Picture 8: Mini puzzle

Picture 9: Sewing shoe

Obr. 4

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