INTRODUCTION

Pupils do not require only cognitive education for their universal development, but also certain training in sensorimotor skills. Sensorimotor education is that kind of education, during which pupils carry out activities, which are concentration and motion-demanding and which connect perception with movement. There are many such activities; they are of great importance for psychological and physical development of an individual. Sensorimotor education is also described as acquiring sensorimotor skills and development of sensorimotor abilities. Several changes occur during sensorimotor education: motions become precise and economic, motions come to be standardized, individual movements become an aggregate, a smooth activity, perception improves, sensorimotor coordination improves, as well as coordination of internal organs with motions, and motions come to be automated. Neurophysiology strives to explain these changes. Neurophysiologists see those deliberate moves and their improvement during the exercises as the creation of conditioned reflexes, with the involvement of motion (kinaesthetic) analyser. Locomotive systems (operations) are seen as dynamical stereotypes. Superfluous movements and unnecessary muscular tension during the beginning of the training are seen as a manifestation of the initial generalization, which in the course of the training yields to a gradual differentiation, a concentration of the central irritation. Rhythmization of gestures is being interpreted through subsequent induction of nerve processes. The effect of a word, a verbal construction or the conscious control during the sensorimotor education is being interpreted through cooperation of the first and the second signal system. In sensorimotor education, special attention is paid to the feedback (Čáp, 1980).

The term 'psychomotor skills' is widely used in the school practice; it describes the concept of a pupil using his/her knowledge, perception and locomotive faculties. These faculties include following aspects:

a) Sensual – reacting to information, visual stimulation,
b) Mental – deciding the method for solving a task,

Čáp and Mareš (2001) defines the sensorimotor skills, which are prerequisites, acquired through education, for adequate motions, which are necessary for achieving a goal, for fulfilment of a certain task." Švec (1998) sees psychomotor abilities as a more complex capability of a subject for the realization of a locomotive activity, which is often connected with his/her mental activity.

Švec (1998) differentiates the process of acquiring psychomotor skills into following phases:

a) Motivation phase,
b) Subject’s orientation in the skill currently being acquired phase,
c) Crystallization of the psychomotor skill phase,
d) Completion of the psychomotor skill phase,
e) Integration phase.

There are two, in practice antagonistic ways of learning sensorimotor skills. The first is the spontaneous way of simple imitation and multiple repetition, the other is carried out by a teacher, who leads his/her students.
towards thinking while learning, using their knowledge, checking the process of their work, as well as its outcome, analyzing their mistakes and preventing them. And the latter can benefit greatly from educational projects.

**ACTUAL APPLICATION OF AN EDUCATIONAL PROJECT WHILE FORMING PSYCHOMOTOR SKILLS**

Honzíková (2005) Shows the application of an educational project while forming psychomotor skills on an actual school situation, in which the main goal for the pupils was to familiarise themselves with the production technology of hand-crafted paper .

Other educational goals have been set up, apart from the main one, as well as intersubject relations, organisation forms, work methods and time frame.

**Educational goals of the project**

i. To realize the necessity and ubiquity of paper.
ii. To get to know qualities of paper, to verify them in simple experiments.
iii. To get to know hand-crafting of paper, to hand-craft paper.
iv. Creative approach towards crafting of paper, towards work with paper.
v. Cooperation in groups.

**Intersubject relations**

The project didn’t concern only manual training, but penetrated through other subjects as well:

i. Czech – writing down an outline of the project, describing the activity
ii. Arts and Crafts – aesthetical polishing
iii. History and Geography – the history of paper production, examination of a map
iv. Ecology – paper recycling, waste sorting

**Estimated time frame**

Pupils spent one month working on the project, five hours a week in average

**Work methods and forms**

Co called ‘activity learning’ was used during the project. You create something, you gain experience, you write it down. During the debate pupils confronted their knowledge with the knowledge of the others; they enriched their information about the topic. It is necessary to point out, that the design of the project was influenced by the pupils. It cannot be prevented, because a large part of the project is created as a reaction to children’s input. Sometimes it was possible to respond to their input right away, followed by an improvised action. Otherwise it had to be postponed until the next day – a homework.

The project was carried out by five-member groups of pupils. The group had to cooperate; every member had his/her role: the recorder wrote down all the necessary data the group had agreed to, and processed the written material. The spokesperson presented the arranged procedures to the other groups. The information person clarified and systematized the ideas of individual group members and gathered information from various sources. The corrector organized and directed the group work – kept the group active, led the discussion and other activities, and made sure all group members were busy. The observer wrote down notes about the group work and directed the group evaluation, which took place at the end of their activity. He or she kept an eye on the time dedicated to the activity. Group work is highly contributive. The pupils learn to cooperate. They learn from each other, they gain new experience, new views of the same thing. They learn to carry their point, to confront their opinion with the one of the others and to look for the most viable solution.

Among other methods, the circle forum was also profusely used (a method similar to brainstorming) for assessment of the outcome, for evaluation of the experience. The method of collective evaluation was used as well.

Individual approach was used for the work with documents and for the observers’ records of experimenters’ work.

**PROJECT RESULTS**

The pupils acquired knowledge about the history of paper production, they learned to look for information on their own; they obtained information about the production and types of paper, they attempted to produce paper themselves; they gained knowledge about binding of a book, and afterwards bound a book themselves. The project results were presented on a school display.

Using of an educational project for forming psychomotor skills in technically oriented activities has proved itself (Honzíková, 2005). Hand-crafting of paper are shown in Figures 1 to 5

**CONCLUSION**

In conclusion it is necessary to emphasize, that the project education has without any doubt its advantages, but at the same time it is a very difficult process,
especially it has high demands for the teacher’s abilities, should they be organizational abilities or managerial, ability to foresee and flexibly respond to new situations, sciential abilities, pedagogical and psychological abilities. I believe that pedagogical faculties should – with the students of the teaching profession – aim more to the practical preparation of those students for their work with the project method (Novotný, 2002; Švec, 1998)

The project method can be used, as it has already been shown above, for forming psychomotor skills as well, because learning these abilities among different pupils proceeds at different rate, and educational projects not only provide various work and learning paces, but also a way for creating different work conditions for forming these psychomotor skills. The project method, in some cases, even makes it possible for a faster transition from less-quality outcomes to acquiring a better method, which also prevents material losses, injuries or other undesirable results.
REFERENCES


