Design as a tool for facilitation of pupils´ creativity
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Abstract

This article explores the suitability of using design developmental opportunities in the technological education. This approach assumes the construction of an educational process through the introduction of some design components in the technological education and pupils' active involvement in the creative process of design-activity.

Keywords: design, design approach, design-activity, creative work, creative imagination, technological preparation of pupils.

The social and economic reforms occurring in our country have radically changed understanding of the purposes, problems and nature of education. It is obvious that a change of an educational paradigm is required: "from the educated person to the creative person". That means a transition from an accumulation of knowledge to training of a personality that is capable to make innovative decisions which affect the future of the person herself and the whole society. That is why there is an increase in requirement to find possible ways, new educational approaches, and research for tools developing potential of creativity and pupils' imagination forming a foundation of potential creativity in their further life.

These requirements are absolutely fulfilled by design approach based on wide educational design possibilities and directed on formation of the creative personality.

Researches of N.M.Konysheva, S.M.Kozhuhovskaja, M.Pavlova, J.L.Khotuntsev give evidence of design approach possibilities in the creative development of the person. In particular, in accordance with H.M Konysheva it is difficult to overestimate knowledge value in the design field for personality formation and development of its creative potential. They are necessary for people of any age and any profession. Furthermore they are general and effective as a specific tool of formation of social consciousness [2].

Thus considering numerous interpretation of design's essence [2, 3], in general we can define design as a creative design-activity on creation of the harmonious subject environment in various spheres of human life.

Hence the suitability of the organization of pupils' technological preparation on the basis of the design approach is defined by the essence of the given preparation, on which creative process of converting activity is based.

The basic principles of this approach are:

- design studies is first of all directed at the creative development and self-realization of pupils' personality;
- design-activity should carry personal sense at the lesson, be coordinated with interests and should be focused on the real use in the pupils' everyday life;

- development of interest to design und aesthetic taste is based on the available personal experience with creative activities;
- during the design-activity process pupil should become the full subject of this activity. That means freedom of choice in plan preparation of creative work, in choice of materials, kind of technics, work complexity etc.;
- design studies should be coordinated with individual abilities and creative selectivity of the child (i.e. preferences to kind of activity, personal senses etc.);
- design studies is based on the principle "from simple to difficult": at the initial stages the teacher shows pupils various practices of design-activity and afterwards pupils can gain own experiences through design-projection activity.

In our research the *design approach* in technological preparation of pupils is defined as structuring of educational process on the basis of design component implementation in the technological education and pupils' involvement in the creative process of design activity. Thus provides practical experience of design-projection and promotes achievement of creative self-realization of the person during the creation of the design objects possessing subjective or objective novelty and having the real personal and public importance.

The *design component* of the technological education of pupils is understood as knowledge system in design as well as skills and their using during the design-activity process.

It is necessary to consider the design component as a part of methodical system of technological preparation of pupils on the basis of design approach including purposes, contents, organisation forms, methods and training aids.

Certainly content selection within design approach implies considering pupils' age features and design-activity specificity. At the younger teenage age, design implementation is focused on all-round creative development of pupils. In the further age, its functions considerably extend due to coordination with future plans, world-view and self-determination of pupils.

The foregoing has formed a basis for implementation of a design component in course "Technology" for 5-7 classes in comprehensive schools including sections "Technology of constructional materials treatment and engineering elements" and "Home culture, technology of fabric treatment and foodstuff". For 8-10 classes there are developed programs of elective courses "Products design", "Suit design", "Interior design", "Phytodesign", "Floristics", "Bases of landscape designing".

The programs include the elements of a design component contained in the complete course:

"A composition in design: elements, features and expressive tools", "Colour in design", "Form. Form creation in design: regularity and principles", "Construction and material in design", "Form dependence on using material, construction and product technology", "Image and style in design", "Creative sources of design".

And also the new content elements presented by educational periods:

- 5th class: *"Subjective world of the person. Design sources", "Concept of Design". "Beauty and benefit - about function and subject aesthetics", "Nature - a creative source of design. Bionics".*
- 6th class: *kind of design: industrial design (devices, furniture, suit etc.), design of environment (interior design, landscape design and phytodesign), graphic design (advertising, packing, computer graphics etc.)*

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and artistic design. "Folk art and handicraft - creative sources of design. Etno-design".

- *7th class: "Connection between science, technics, art and design. Influence of design on competitiveness of products. Prospects on design development". "Architecture and art – creative sources of design". "Images of the future in design. Art design, art objects". "The basics of design-projection. Analog and innovative projection. Design-projection stages". "Designing graphics". "Famous designers. Designer as profession".*

Spheres and objects of design-activity are defined in the course content for each theme corresponding to possibilities and interests of pupils and promoting their creative development (*Table 1*).

Theme	Spheres of design-activity (exemplary list)	Objects of design-activity (exemplary list)
Technology of wood treatment Technology of metal treatment	interior design and design of everyday article, furniture, instruments, toys, bijouterie	everyday article and interior article (trivet, kitchen set, vase, breadbasket etc.), furniture, instruments, toys, wood and metal bijouterie
Product design	interior design and design of everyday article , accessories design	photo frame, flower vase, candlestick, pencil holder, souvenir, trivet, greeting card, bookmark, key ring, bracelet, hair tie, toys, Christmas-tree decorations
Cooking	design of food and table appointments	dishes as well as theme and festive table appointments
Technology housekeeping Interior of housing premises Hygiene. Cosmetics	Interior design, phytodesign, landscape design hair design, make-up design and nails design	interior of kitchen, dining room, living room, children's room, flower designing in interior, landscape design of flowerbed, festive and everyday hairstyle, make-up, manicure
Basics of science of materials	design of fabric, fittings, finishing agent	fabric model, fittings, finishing agent
Basics of engineering	design of instruments and devices	hand instrument and devices for working of wood, metal, fabric etc.
Decorative and applied arts Embroidery Patchwork Crochet	interior design and design of everyday article , accessories design, clothes design	everyday article and interior article (tack, trivet, table napkin, towel, sachet, tablecloth, cushion, coverlet etc.); accessories (cover, spectacle case, cosmetics bag, handbag, hemstitch collar, cape etc.); clothes (apron, skirt, blouse, dress trimmings)
Designing and modelling of apparel Technology of apparel production	work wear design, design of shoulder and waist clothes; design of table linen	work wear (apron, pinafore); shoulder clothes (skirt, trousers, shorts; waist clothes (top, nightdress, dress, blouse, windcheater), table linen set

Table 1: Spheres and objects of pupils' design-activity

It is necessary to notice that implementation of a design component means not mechanical filling of a teaching material by design data, but displaying of design features on all teaching and educational process, as a creative design-activity.

On the way to find the essence of this approach we will try to designate design possibilities in creative development of pupils.

In general *creativity* is a process of human activity creating qualitatively new material and cultural wealth. Creativity assumes person availability of abilities, motives, knowledge and skills supporting creation of product different by novelty and originality. Thus creativity is closely connected with all mental processes, including imagination. Hence *imagination* is one of the basic components of creativity.

Imagination process is peculiar only to the human beings and is a basic requirement for the labour activity. Before doing individual has to imagine the way of his next steps, that means he creates in advance an image of a material thing which will be produced in the future's practical activities [4].

A distinction is made between *involuntary, accidental, passive* (unpremeditated and deliberate) and *active* (recreating and creative) imagination [1, 4].

The particular interest for our research represents the *creative imagination* assuming independent creation of images which are realized in original and valuable products of activity. The creative imagination is an integral part of technical, art and any other creativity. Actually the nature of the creative activity opening new and novel, assumes an aspiration to glance in the future and to anticipate the result of an activity. The essence of creativity of design consists in the presentiment, prediction of an image of the future subject and in the consecutive approach to it during projection, so-called "figurative getting" which basis is the creative imagination.

Thus it is possible to say that the imagination is included into labour process and is a necessary part of any creative activity – scientific, art, engineering or design.

As it was told above, the imagination and creativity are closely connected. But, as S.L.Rubinstein underlined, the connection between them is not enough to set the imagination as a prerequisite and to deduce creativity as a result of this function. The inverse relationship is dominant: the imagination is formed through the process of creativity [5].

Accepting design as a creative activity, it is possible to draw a conclusion that implementation of pupils in a design-activity in technology lessons can be considered as an instrument of the development of creative imagination.

Thus use of specific design methods, in particular *design-projection*, seems to be reasonable for the development of creative imagination.

During the design-projection process at technology lessons pupils are developing and making products due to certain demand of them, and then they are testing the product and estimating the degree of the requirement's conformity. In the project pupils work independently comprehending the real processes, experience concrete situations, join to penetration in depth of the phenomena, design new processes objects etc. Special role in design-projection is taken to creative imagination which recovers, connects and fulfils isolated plans with

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consistent content. Afterwards it transforms them into high-grade concrete images of space and plastic form from which the planned design object is born in mind.

In the creative activity as well as in the design-projection creation of something new and transformation of already existing images is carried out by instruments of imaginative or cogitative operations as *combination, agglutination, accentuation, exaggeration, schematization and typification* [4, 5].

Below you will find some examples of activation of these cogitative operations by involving pupils in design-activity at technology lessons by using special tasks:

- *combination* - is used in designing in case of need of changing some separated parts of different subjects or phenomena and their transformation to the one complete image. *Task*: develop as much as possible models using one basis of an apron and five variants of pockets and bibs of the different form;
- *transformation* - is used in design-activity for creation of a new product or an image by changing the subject's form: rounding, extending, increase or reduction of its various parts. *Task*: develop from a silk scarf in the size 90x90 cm variants of a belt, decoration in the form of bow, tie, handbag, summer top;
- *agglutination* - is used in design-activity for the creation of a new product or an image by transferring of various parts or properties of one object to another. *Task*: three circles are drawn on a sheet of paper, think up to them parts or details making those subjects for an apartment interior. Describe these subjects;
- *accentuation* - is used in the design-activity directed on allocation of the most essential signs of the projected product, interior etc. *Task*: develop a interior for living room, with a lunch zone in the attention centre, having allocated it by means of colour, the form of furniture, decor etc.
- *exaggeration* - is used in design-activity when it is necessary to strengthen properties or qualities of a subject, to change its proportions or quantity of subject's parts or an image. *Task*: develop an interior of a children's room using just one colour from colour scale (red, yellow or green);
- *schematization* - is used in the design-activity directed on simplification and finishing of these qualities to the one scheme. *Task*: develop a sketch of a layout with furniture and equipment arrangement in kitchen;
- *typification* – is used in the design-activity directed on allocation of the basic repeating signs of object and an embodiment of these signs in absolutely new product. *Task*: develop sketches of fantasy patch pocket for the working clothes (an apron, a dressing gown or overalls) fitting according to its owner profession: cooks, the gardener or the seamstress.

Certainly not every point of the methodical aspect of the design being used in the technological training of pupils appears to be clear. The offered approach doesn't solve all problems arising in this area. But already nowadays designing elements have broad possibilities of using as a part of creativity facilitation of the pupils. As S.M. Kozhuhovskaja underlines [3], engagement by design-activity forms the taste of art, the ability to express one´s inner world using various materials and techniques of the image as well as elements of design culture, the urge to create beautiful harmonious works. All of these qualities characterize a pupil as a creative person and form his creative potential.

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