

Developing Art and Graphic Skills among Future Designers: An Integrative Principle and A Methodical Model

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Abstract: *The authors talk about the methodological problems of training designers in transitional educational systems of postcolonial society. They solve new theoretical perspectives of integrative design teaching for future specialists.*

The authors aim not only to generalize the theoretical foundations, but also to create a single relatively closed model of formation of artistic and graphic skills and abilities of future designers and even offer illustrative tasks with simultaneous use of different types of social consciousness and the main (generic) types of modern design - environmental, universal, communicative (communicative-digital) and futuristic.

Achieving this goal was possible by using only theoretical methods - system analysis of literature, historical and typological observations, epistemological generalizations extrapolations within an integrative understanding of the object of transformation and pedagogical modeling.

The main practical achievements of the article are the universal multilevel model, its explication and illustrative examples of the tasks of its implementation. The theoretical results of the article were a new understanding of the functionality of artifacts, the secondary nature of the aesthetic component, the integration of its practical and universal communicative functions.

The article may be of interest to teachers of design departments and courses, design students, design practitioners and specialists in the field of advanced design.

Keywords: *Vertical integration, horizontal integration, consciousness and educational environment, social words, instrumental-material restriction, virtual communication.*

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Introduction

Ukrainian design education, although belatedly, but rapidly adapting to the needs of socio-artistic communication and creatively oriented production of goods and products, is included in intercultural communication and universalization to meet the aesthetic and pragmatic needs of the modern consumer.

However, we have some contradiction: experienced teachers who have gained experience in the post-socialist approach to the design of space, its objects or other components, must adapt to the latest trends, quickly master the objective multicultural methods aimed at creating original, rapid and polyoptional ways to solve design problems and pass them on to new generations who are far ahead of their teachers in terms of natural postanalogue creativity.

Breaking stereotypes about traditional and colonial approaches to space design and polymodal communication requires general methodological works that comprehensively substantiate the latest concepts of acquiring artistic and graphic skills of future designers, smooth out the "generation gap" and develop flexible and expanded concepts. In Ukraine the first serious doubts about the industrial and aesthetic aggravation of graphic design appeared at the turn of the millennium, when scientists began to publish works about "doubts about traditional approaches". For example, Yu. Borisov argued the favor of profanation and individualism in our design education, Borysov (2003); V. Danylenko integrated the latest trends in industrial, graphic and environmental design, Danylenko (2003). This inspired us, almost 20 years after those first attempts, to begin to develop a general medical model for teaching design that takes into account all the latest factors, the main ones being integration and communication.

We follow the world discourse on our topic and see: very relevant experimental studies showing the high effectiveness of artificial neural networks for the formation of graphic design skills, Zheng (2022); integrated use of big data in filling student practical classes with virtually limitless resource material, etc., Xu (2022). However, in the Ukrainian design education, focused more on a combination of innovative and traditional methods, it is necessary to develop a common frame scheme (model), where digital tools and real communication would find a place.

At the end of the twentieth century designers faced an important problem: Is design an art or an instrument of public communication? Frascara (1988). The increase in global communication and digitalization has given an unambiguous answer to this question: at least graphic design is the

art of communication through the transformation and interpretation of real or virtual continuum objects. Therefore, current textbooks minimally talk about design materials as physical things or substances, Heller (2015). However, we understand that the limitation of form, resource, and possibility is there even in virtual-digital design activities, especially in our country. For example, scholar G. Swanson argues that the decline in designers' motivation is due to the limitations of materials and tools broadly understood, Swanson, G. (2020). In our opinion, the subjective awareness of this limitation (especially in underdeveloped countries) is so important that we will consider this factor when developing our educational model.

In Ukrainian educational institutions, where designers are trained, they already sincerely use internationally recognized textbooks on the basics of design. Most of these textbooks were written at the end of the last century, but translated into Ukrainian or Russian recently. And yet in such theoretical and methodological works the emphasis is made on the deep universal language of design, Meggs (1992); on its intercultural universals and interdisciplinary connections, Barchas (2003).

In Ukraine, several fundamental monographs on the training of designers have appeared in recent years. Although most of them still consider digital technologies and social-communication tools as complementary, optimized, these textbooks already have a proper futuristic-oriented understanding of graphic design. For example, S. Alexeyeva cautions young designers to be guided by current trends that have a "short lifespan". The pedagogue comes to the conclusion about the career of the future designer: *In recent years, the integration and globalization processes in the labor market have changed the idea of professional careers and the possibilities of achieving professional success. If earlier career development was dictated by the internal labor market and assumed full long-term, guaranteed employment, regularity and predictability of career progression, now the conditions are determined by the external market, which is characterized by the temporary nature of contracts, lack of stable guarantees, unpredictability and independent management of own career*, Alekseyeva (2018, p. 280). We cited this rather cumbersome quote to confirm that Ukrainians already have an understanding of the general design development, but still lack its methodological extrapolation.

The aim of our article follows from the above: we want to outline the current trends in the training of graphic designers, take into account the best achievements and develop a framework model for Ukrainian educational institutions that train designers. A secondary goal is to reflect some integrative tasks that could be applied in the framework of a reasonable model.

The methods of our article are systematic-review, historical-typological, extrapolative and pedagogical-modeling. That is, the article is written using theoretical methods.

The presupposition of our article is the thesis about the universality and integrative nature of the basic aesthetic-semantic and pragmatic regularities of today's design, which entails the reorganization of educational content with an emphasis on the actual, relevant to the latest trends horizontal relations and design communication. This defines the idea of our article.

However, the Ministry of Education and Science of Ukraine for some reason still descends framework programs, traditionally focused on the so-called vertical relations, focused on the heredity of tradition, on the possibility of a clearly defined administrative management of the educational process in the preparation of designers, and, worst of all, on some defined competence final results.

The international relevance of the article lies in the fact that we have for the first time developed and presented graphically a theoretical and methodological compact model that takes into account the maximum factors of graphic designers' training, and also takes into account the most interesting (sometimes alternative) framework approaches expressed in the works of the authors that we analyze here.

Integrative aspects of the new design education

The first thing we would like to point out to teachers of graphic design is the expansion of design practice itself, in which there are fewer rules and more inner multimodal meaning. In the wake of the postmodern experience, authentic design can be considered not individual elements of decoration or complex artifacts, but a way of integrating a certain philosophy of liberal pragmatism into the object being created or designed that is taking shape around *deconstructivism, pluralism, and urbanism* (Konovalova, 2019; Nerubasska et al., 2020a,b). The determinants of the latest design solutions draw their aesthetic resource not from art, but from the context: the economic, sociocultural, and other existential conditions that are taking shape before our eyes.

Design education should integrate around heterogeneous but convergent phenomena in the broad sociophilosophical sense. The first and most obvious degree of this integration is the combination of technological creativity and creative creation, between which (in view of the mass and pragmatism of post-industrial art) there are fewer and fewer distinctions and more and more common tools. These common tools span the range of

hands-on creativity from vast data and cloud technologies *to the use of digital tools and the repurposing of social media programs to support creative thinking* (Al Hashimi et al., 2019). At the same time, multimedia reproduction or design of objects of reality allows to refuse the division of this reality into material (objects) and virtual (objects, images). In addition, current graphic and design competence is gradually breaking away from its classical understanding, where aesthetics and the manifestation of the creative genius of the author were in the first place. Real design is pragmatic and utilitarian, and the aesthetic component is increasingly difficult to separate as an image. This is also reflected in the vocabulary, where creativity is no longer its own creativity, and the design of objects is no longer their decoration or arrangement, but their inner essence, their integration into a multitechnological world and an extremely segmented human consciousness.

Digital modeling is now a field that is now an independent variable, an invariant tool, without which the realization of any design solution cannot do without, aimed at pragmatic and cultural communication. This problem is particularly acute for countries with deep ethnic or archaic traditions in the modeling of things, environments and communication systems. As scholars have noted, in such countries design teachers face problems of access to physical and digital tools and materials, and of motivating students to think innovatively and even futuristically creatively (Tusiime et al., 2020). In the context of our study, this problem becomes one of access to possible competencies that will be valid for the latest civilizational challenges. W. Tusiime and his team, who studied the psychological and technological capacities of students, teachers, and administrators of design firms in Uganda, identified a number of obstacles: *The findings suggest that A&D technicians face motivation issues (related to negative attitudes, insecurity, lack of time, lack of digital competence, and fear of losing creativity)* (Tusiime et al., 2020, p. 2).

When we studied the current methodological literature on the topic, we noticed: in recent years, numerous computer programs and digital systems for creating a particular kind of graphic design (e.g., book layout, creating advertising posters) have appeared (Guo et al., 2021, May). Learning algorithms for designers are becoming popular, with the academic effectiveness of such algorithms proven by Xue (2021). However, such tools do not solve the problem of forming the actual taste, design personal sensitivity of the student, so analogous intellectual-creative methods of learning tools by no means lose relevance. For example, we liked the approach in which design students develop a persistent aesthetic-constructive flair (even outside the educational process), which is possible with communicatively oriented creative learning with actualization of latent

cognitive and intellectual capabilities. For example, a design student's divergent thinking and constant aesthetic creative acuity are well developed by brainstorming tasks, the use of mind maps, etc. (Dong et al., 2021). We understand that such systematic mental, creative, and cognitively oriented methods will allow us to meet the most important standards of design education: flexibility, consistency, proactivity, etc. (these standards are defined by the authors of this article based on general trends in design communication).

We will talk at various points in our article about the futuristic orientation of real design and its education. G. Swanson (2020), in his article, suggests that designers are now being trained in 2025. In terms of the length of undergraduate education, this doesn't seem strange, but that's not what the scholar had in mind. To begin with, design education needs to abandon the old stereotypes. For example, that the world is a physical material that can be manipulated, transformed. Another stereotype is "thinking through creating and (as a result) mutually approaching man and the world." This is the way we can talk about former designers. But the designers of the new age are not like each other, and the material they work with is importantly virtual. Both designers and consumers and components of virtual materials are beautiful in their diversity and singular only in the integrative nature of creative impulse and willingness to change.

Thus, the parameters and philosophy of integration of design types, in our opinion, consist in the convergence of functions (the main one is socio-communicative) and enlargement of traditional types. For example, at the beginning of the twentieth century, scientists and practitioners talked a lot about universal design as an organization of access for people with disabilities. Now universal design is about access and convenience for all. It even includes the practical functionality of objects, their ergonomics, and universal aesthetics (as much as it can be). In fact, this trend complements such significant paradigms as environmentalism, permanence, loyalty, multimodality, etc. Accordingly, and such design universals should be taught not only to future specialists, but also to school students under the conditions of integrative cultural, pragmatic, aesthetic, optional methods, broadcast by the teacher, Sova (2017).

The author's model of formation of art-graphic skills of future designers. Principles and recommendations

Thus, based on the latest theories and world tendencies, taking into account Ukrainian educational problems, we need to coordinate vertical and horizontal trends in design education, justify its integrative nature by concrete methodological principles and develop a general methodological model, the center of which would be the educational content (methods and content), and the outer edges (frames) could connect this content with real practice (content → context).

Researchers who studied the complex integration of design education in Ukraine and other post-Soviet republics have noticed: for educational planners, of course, vertical integration seems more important (Zhdanova et al., 2018, p. 375). There is a positive side to this: vertical integration is generational heredity, educational administration, and the "descent from above" of a social or industrial order. The same scholars argue in favor of horizontal integration: movement toward a goal, interdisciplinarity, and intermodularity (connection between blocks of knowledge and skills). We would like to add that horizontal integration is also the intention of an individual designer or a corporate (training) group. It is always directed into the future and is never defined as vertical. Also, we consider horizontal integration as a set of pragmatic production social or cultural factors that are not clearly articulated, but can be seen in culture and sensitively or intuitively grasped by talented designers and turned into features or artistic details of their artifacts. Finally, we are convinced that current graphic-design communication is always horizontal. Its messages correlate with a public sensitivity tuned precisely to the codes of culture and pragmatics that are relevant right now.

To model the "middle zone" of our model, we borrowed from J. Cezzar (2020) an idea that we consider very valid. This scholar, in her seminal article on educating designers in the space of contemporary graphic and communicative design, has convincingly argued that in the development of the student designer he or she needs to go personally and corporately through three important areas of graphic communication - transformation (transformation), creation (own creation) and articulation, Cezzar (2020). The first two stages are more or less clear to everyone, but by articulation we mean the special stage of graphic communication, when the created or arranged artifact interprets and implants itself in different social contexts and remains trendy and relevant. This is the designer's ultimate goal. However, we have supplemented this three-component methodology with a fourth

component: feedback. It, as well as the designer's self-reflexivity, is a measure of the quality of the product (see Table 1)

Table 1. *General methodological scheme for the formation of artistic-graphic skills*

Social orders zone	Feedback ↑	Transformative activities			Creative activities	Zone of instrumental and material restrictions
		Communication consciousness / educational environment				
		Environmental consciousness (permanence) / educational environment	Vertical integration	Digital consciousness / educational environment		
			Educational content (methods and didactic content)			
			Horizontal integration			
		Universal consciousness / educational environment				
		Articulation activity				

The table is based on the author's model

Now we want to comment on our model. At its center is the factual content of education (methods and content). It is framed by two pairs of relative constraints. The first is horizontal and vertical integration. We have already written above about the utmost importance of the goizotal socio-communicative integration and the relativity of the functions of the vertical one (process organization, heredity, general patterns, etc.). The content of education together with its organizing two types of integration is surrounded by the four most important, in our opinion, consciousnesses determining the educational environment (intrapersonal and external). If we go clockwise, we can notice the arrangement of these types of consciousness from more - to less possible: communicative, digital, universal and environmental. A more external level - degrees of educational activity (also sequence - clockwise): transformational - creative - articulatory - perception of feedback. We have already indicated that such an ensemble of sequential stages of learning - creation we borrowed from Cezzar (2020) and supplemented it with a *feedback component*. The external contour is as follows: the case - the zone of social order (expectation), seeking to expand the potential of the model, the case - the zone of instrumental-material limitations. The learning (production) activity of a future designer should move between these extreme determinants.

Now a few more words about the types of design and examples of specific tasks for forming design skills within the integrative model.

In the Ukrainian methodology of training future designers there is an extremely differentiated classification of types of today's design: print design, architectural design, environmental design, etc. (more than 20 nomenclatures in total). Even now there are new and new classifications every year (Mardov & Kizi Farxatova, 2022, February). However, we believe that in preparing a universal, innovation-minded designer, it is necessary to pay attention to the types of design that correlate with the postcolonial liberalistic paradigm of current society and, in fact, include all other types of design. We propose to place such fundamental and indeed framework types of design at the center of the thematic component of the content of design education:

1. Ecological design
2. Universal design
3. Digital design
4. Communication design

This approach lays down the fundamental principle of the latest design - its integrativity, which should be reflected in teaching in specialized educational institutions as well.

In fact, the integrative approach in teaching design makes all of the above types complementary synonyms, but the futuristic orientation of these types is obvious. It is even possible to single out futuristic design, which is difficult to imagine without environmentalism or universality.

Thus, we offer a number of specific recommendations in the integrative paradigm and a number of specific tasks, comprehensively combining the implementation of several types of design with the dominance of one directly related to a specific social order.

We offer examples of four tasks for real future designers: from ecological, communicative-digital (web design), universal and futuristic design (as integrative). If you look closely, none of these types of design is aimed at the past, artifacts already created or replicated. It should anticipate current actual creativity and practice at least prognostically and preventively.

1. Task. Integrative with a predominance of ecological design. Develop an artistic artifact in an urban style using recycled waste and industrial waste (construction, industrial). The artifact should be aesthetically appealing and shape environmental thinking and human desire for sustainable development.

2. Task. Integrative with a predominance of universal design (in a broad rather than inclusive sense). Develop a layout of the adjacent area based on maximum accessibility, environmental friendliness and prospects

for sustainable development. But in the layout you should not emphasize accessibility for people with disabilities. Everything should be hidden as much as possible to avoid segregation of all sensitive groups

3. Task. Integrative with the dominance of digital, or rather communication and information or web design. Create a chatbot based on minimalism and permanence where people of all ages, status and professions can communicate.

4. Task. Integrative with a predominance of futuristic design. To create a graphic model (if possible, a prototype made of environmentally friendly materials) of a ballpoint pen in a futuristic design. The pragmatic setting is as follows: make sure that this fountain pen does not go out of fashion (does not become retro) in 10 - 15 years, and now has a moderately flamboyant futuristic design.

The basic principles of such tasks are clear formulation, but vague final requirements for material, form, and other instrumental parameters. The main thing is function (general pragmatic) and optionality (specific consumer).

When students do these or similar tasks, they should draw important general conclusions. One of them is suggested here: *reintegration of the categories of utility and beauty*. It used to be that a beautiful artifact could be of some use or a useful thing could contain elements of design. A true technogenic pragmatic approach levels out such a divergence. Scholars do not oppose but complement two things: the relationship to the user (first place), the designer's desire for beauty (second place) Barrett (2021). It seems to us that the graphic designer's desire for beauty is his internal communication, which may or may not be of interest to an outsider consumer. But communication with the user is multimodal: it includes a minimal but universal aesthetic component, a component of access, convenience, ergonomics, reusability, sustainability, etc.

Conclusions

The main result of our article is that we have proposed a framework educational model of designers' training in Ukraine, which is suitable for any state that has adopted the Bologna system of education and is at the stage of its existential reforms from below, in the horizontal plane.

The theoretical result is a new understanding of graphic design, which lies in the emphasis not on the means-tool (graphic image), but on the tool-function - the creation of artifacts, designs and presentations of visual communication, social, mass, egalitarian. This means that when teaching graphic design the method and means follows the function, the function follows the creative solution of social problems, requests and orders.

We also came to a number of theoretical conclusions. We understand that graphic education (like graphic design itself) is very changeable and sensitive. It exists at all as a visual-communicative response to technogenic, cultural, globalizing and other factors. This reasoning allows us to move further away from the industrial-industrial attachment of graphic design, to root it in post-industrial horizontal ties, based on actual multi-channel communication. Under such educational and creative conditions it is necessary to orient students in their future skills to prognostication (the designer must predict virtual communication for years to come), their own intension experiencing the intension of social groups. In addition, the design graphic activity of the post-industrial specialist is suitable for domestic, advertising, public, industrial and other types of communication.

The most difficult and main method of the present-day designer is to integrally separate ideas, solutions, reflections and emotions in the form of visibility, to be able to present things and ideas in an articulation that will be valid for a particular or general social communication. The concept and synergy are more important than the coloristic, compositional or material solution. Both fashion-industry trends and leitmotifs on retro or archaic are relevant right now. Their use is driven by order, plan, and communicative efficiency. One could say that learning graphic design is acquiring the art of "managing" the world of things that already have their own aesthetics, ergonomics, cultural value or meaning.

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