Priorities for the Use of Computer Programs in Landscape Design

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ABSTRACT

In the past, landscape experts had not thought about the possibility of using computer software in this area. Is it possible to convey project ideas based on the inner experiences and feelings of the designer using computer programs, or is it possible to do it only with the help of manual graphics (pencil, watercolor, etc.)? It was hard to imagine. Today, it is difficult to work in any field without computer programs, especially in landscape design, where computer programs are widely used. Especially in the requirements of landscaping competitions, the concept of the design stages of the field has become a condition for presentation in computer programs.

Introduction

Software developers and 3d model developers have created such editors and software packages that you can take pictures or record videos. You can get an almost realistic environment of the objects being analyzed, in different seasons and at different times of the day, with or without placed lighting on or off sources. In addition, you can walk or fly around the projected area from almost different directions, replace some plants with others, create and replace paving materials, different views, landscapes, design and decor elements. you can change [1-4] .

It takes a lot of time and experience to fully review the software offers available in the global landscape designers market. We can combine them into some functional groups to convey the basic idea of different software products [5-7].

So the first stage that all designers face is drawings and plans; There was minimal controversy here, as the speed, convenience, and excellent accuracy of working in computer programs for manual graphics has already become commonplace for most landscape designers and architects [8-11].

The main part

Depending on the size of the designer or organization, the requirements of customers, contractors and partners, there are only three offers.

Figure 1. Topographic image developed in AutoCAD.

We are talking about professional vector graphics programs and amateur packages, in which the creation of a plan is combined with the subsequent construction of a three-dimensional scene. Let's take a closer look at these programs:

1. AutoCAD Autodesk - belongs to the category of CAD (computer-aided design systems), is characterized by technical orientation, a unique method of designing drawings and symbols, helps to work together on projects. It is mainly used by design institutes and bureaus, from which documents are submitted for execution to organizations that require compliance with the standards. The clarity of drawings in AutoCAD requires a lot, especially for non-experts, but it is relatively easy to export them to other application formats for further processing (Figure 1).

2. CorelDRAW is a vector graphics editor for a very wide range of applications, from printing to WEB-design, but in this case we are interested in creating large-scale plans with beautiful design of dimensions and drawings [12-15]. It is mainly used by designers and designers for private clients who value appearance and aesthetics, as the program supports creation in terms of shadows, complements it with photorealistic materials, transparency and much more, although CorelDRAW convenience and accuracy are also at stake.
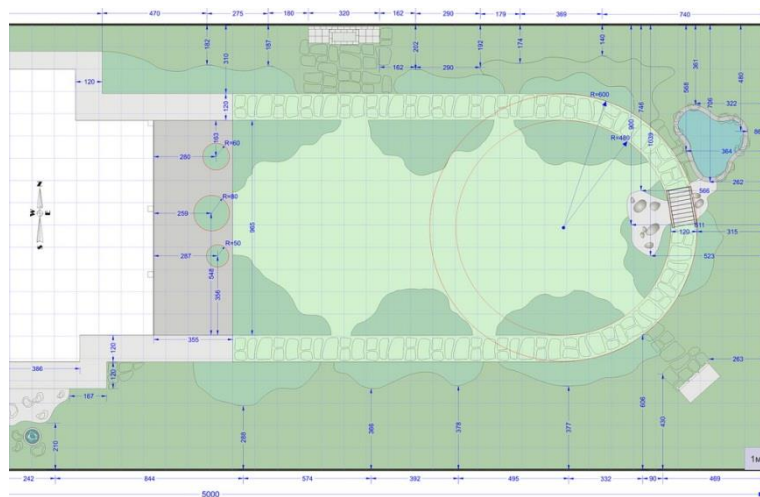
Figure 2. Draft master plan developed in CorelDRAW, with dimensions.

It should also be noted that the program comes with an excellent raster editor Corel PHOTO-PAINT, which allows you to place images on drawings and process them, but we will talk about it a little lower. Some packages include the Corel DESIGNER application, which allows

you to work with drawings in AutoCAD format, and there is a separate CorelCAD program for

the same tasks (Figure 2).

Figure 3. Realtime Landscaping Architect dasturlar to`plamida ishlangan bosh reja loyihasi.

3. Amateur programs are usually packages (software packages) with simplified modeling and visualization algorithms for a wide range of users. One of the most popular applications is Realtime Landscaping Architect (Figure 3).

Packages (software packages) usually include two programs - one for photomontage, one to use the software available in the library with a set of plants, and the other to build plans and then translate them into three-dimensional scenes. However, the kit for building houses and filling the stage with objects and plants, as

well as some options for importing them, is limited to the libraries of models and materials available in the program [16-18]. It is not exported to other file formats to further improve the project in third-party programs (Figure 4).

Once the plan is complete, work will begin on the three-dimensional editors. There are a lot of them at the moment, so for ease of viewing, they are divided into three main groups according to their functional capabilities, and we will focus on just a few [18-20].

Figure 4. Working drawing of the master plan project developed in the software package Realtime Landscaping Architect.

The first group includes programs with a full cycle of modeling and visualization, such as 3D MAX or Cinema 4D. They have a large set of tools and plug-ins for all sorts of 3D graphics functions, including particle systems, scattering, sculpting, animation and more.

Figure 5. Visualization developed in 3DMax.

They also include their own or external visualization modules. These are very difficult programs to learn and use, requiring powerful enough computer hardware, but in practice more than 20% of their capabilities are typically not used for the needs of a landscape designer or visualizer (Figure 5).

The order of operation in such programs is approximately the same:

a) Import and scale the vector plan.

b) create a three-dimensional scene based on it (buildings, fences, arbors, roads, etc.).

c) Defining and editing textures and materials according to structured geometry.

d) Fill the stage with models of plants, stones, lamps and other things.

e) Lighting and visualization setup, which involves creating photographic images from different perspectives or video along a predefined camera trajectory.

The second group of 3D editors can include programs with an intuitive interface and minimal parametric data, such as SketchUp or Form Z. The images obtained are more like hand-drawn drawings without special rendering software and are commonly referred to as non-photorealistic images (Figure 6).

External renderers include plugins like VRay, Thea, Maxwell, Artlantis, Corona, and more, so you can get great results if you want. photorealistic images of the scene.

Figure 6. Visual view developed in Form · Z graphics program.

Working in such programs is much easier and more convenient than before, the requirements for computer power are not so serious, but there are a number of drawbacks. First, they are low poly models, and therefore it is very difficult to place objects in detail in scenes, such as sculptures, multi-leafed plants, large-sized grasses, and so on.

This isn't really that important for general angles and big scenes, but with close-up plans, you have to go for some tricks. Accordingly, the most realistic high poly models of plants from the well-known collections of Archmodels, xFrog or CGAxis and garden decoration are not used in landscaping. Therefore, special kits are used for these programs with simplified models, or plants that are cut from photos on a transparent background and always turned to the camera (2D models).

In short, it turns out to be a bit easier and better to complete projects using a design method such as photomontage. Its convenience is that it takes a short time to change the design of the area a bit or to offer a concept at the selection stage, any corner of the garden, to develop a floral design. It is easier to take a picture of the object, change it a little and put on top of the proposed solutions. As I mentioned above, photo editing applications are already included in amateur programs or included in the CorelDRAW graphics package (software package), a well-known program

such as Adobe Photoshop can be used not only for editing operations, but also as applications. Easy to edit and print colors for album design, logos and watercolors.

Conclusion

In order to prepare future professionals for professional work in higher education and to ensure their readiness and ability to compete in the labor market, the formation and development of a socially mature person is carried out through the use of modern teaching technologies. Therefore, it is necessary to analyze existing teaching theories and develop ways to use modern teaching technology. Teaching sciences with the help of modern pedagogical technology in higher education is the main criterion for the development of theoretical knowledge of young people in the educational process, the ability to work in professional areas, the training of competitive young professionals needed to develop the country's economy. This can be achieved mainly through the formation of professional knowledge and skills.

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