As a fundamental part of the design process, the act of visualizing data engages methods of disclosing, encoding and registering information. For the landscape architect, the representation of geospatial data often becomes the primary way of understanding and responding to a site. As a result, contemporary conventions are constantly being redefined by both topical technologies and the emergence of new ones—presenting us with increasingly more creative ways of discovering and interacting with information.

Whether cartographic making, landscape processing, or systems visualizing, both virtual and augmented reality technologies are ripe for exploring and tackling new paradigms of immersive interfacing in landscape architecture.

**Virtual Reality**

Over the past 40 years the emergence and evolution of gaming technologies has immersed users into virtual worlds using realistic graphics, rich narratives, and the authority to control their own digital experiences. So, it comes as no surprise the argument for video game technology as a critical part of the design process is beginning to gain traction amongst the design disciplines. In landscape architecture specifically, there has been a shift in the ways landscapes are represented—challenging conventional techniques such as plans, sections, and perspectives and exploring interactive, dynamic media to express the ephemeral and atmospheric qualities inherent in the landscape. The introduction of free and accessible game development software such as Unity 3D, has made it possible for anyone to design their own game environment while also “triggering” events to unfold as the user interacts with these virtual worlds. However, the use of these available technologies remains largely isolated within the gaming design disciplines, focusing primarily on the outcome of a “playable” consumer-driven game. However, the advantage of these technologies is that there is an opportunity to integrate various "methods and processes" of designing virtual environments into current practices of representing landscape design. For example, in the mapping of site, these technologies would allow designers to engage with spatial and statistical data through a dynamic immersive experience rather than the static 2D convention of “a map.” Yet, to better understand the medium of games in the context of landscape representation, several analyses would have to occur. First, a review of the “immersive” qualities of gaming environments—focusing primarily on its atmospheric and ephemeral abilities—would reveal its efficacy in displaying real-world metrics. Second, an evaluation of the advantages and disadvantages associated with current 3D immersive technologies such as Lumion and how it differs from the gaming design development platform, Unity 3D, would need to be executed. Next, the compatibility of conventional 3D modeling applications such as Rhinoceros 3D would need to be studied—revealing the necessary workflows to integrate a designed landscape into a full immersive “playable” experience. Lastly, one would need to speculate on the implication of integrating gaming technologies within academia and praxis. So, while these outlines are very much projective research in progress, there are already technologies today that begin to blur the boundary...
between the digital and the physical and therefore are strongly positioned to help redefine often nostalgic and traditional conceptions of landscape and ecology.3

Augmented Reality

Augmented reality technologies are not new. In fact, the relative ease of their construction makes them an accessible tool for landscape architecture instruction. For this reason, combined fabrication and digital technologies afford the ability to analyze spaces beyond the traditional outcomes by overlaying big data sets with comprehensive formulas to execute such tasks as evaluating ecosystem services from existing site conditions. This analytical knowledge, for instance, then provides a framework to measure, synthesize, and conceptualize ecological design solutions in response to the critical environmental, social, and economic needs of an area. In other words, by working within an interactive and responsive digital modeling platform, design outcomes can adapt and be evaluated in real-time. Such a responsive workflow being orchestrated within a digital 3D analytical environment can simplify resulting outcomes into a visually-communicated set of relative and tangible metrics. Therefore, methods of representation must in turn also transform to address landscape performance complexities by using dynamic visualization techniques that can include analytical datascapes, interactive media, and animated scenarios in response to spatial and temporal conditions. It is within this framework, that a series of workshops and exhibitions were held at the UNLV School of Architecture and the Marjorie Barrick Museum of Art to showcase how augmented technologies can effectively integrate landscape performance metrics such as terrain grading, runoff hydrology, and vegetal limitations packaged into a responsive platform operating between the analytical and design process of a project.

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Ultimately, for the profession of landscape architecture to remain relevant, we must continue to pursue ever more radical and technology-embracing methodologies to catalyze divergent thinking with rigorous study. Whether augmented reality today or virtual reality tomorrow, it is time for landscape and its adjacencies to shed perspectives not taking full advantage of interdisciplinary cross-pollination, and jump headfirst into asking more of our visualization methodologies. As Bruce H. McCormick et al articulated in 1987: “Visualization is a method of computing. It transforms the symbolic into the geometric, enabling researchers to observe their simulations and computations. Visualization offers a method for seeing the unseen. It enriches the process of scientific discovery and fosters profound and unexpected insights.”4

Notes


Bibliography


