LANDSCAPE ARCHITECTURAL RESEARCH--
Its Time has come.

For many, the term landscape architectural research is a contradiction. Landscape architecture is an art, not a science. Therefore, how can one link an art with the scientific method, the hallmark of research? And, why should he?

Perhaps it is timely, in the wake of the first ASLA Professional Awards Program with a research category, for the profession to reconsider how it relates to research. Is the concept of a research project clearly understood as quite different from the "research" step in a design project? Are there areas of landscape architecture that suffer from lack of facts? If so, what are they and what research approaches are appropriate? How can such a design profession benefit from research? Perhaps these questions and other issues raised here can provide the foundation for improved research in landscape architecture.

What is research?

A popular interpretation by the practicing landscape architect is that of "research and analysis" as a step in the design process. In most instances this refers to environmental analysis—searching out the needed characteristics of the land for a specific design program. The emphasis is on the design project, to employ a research tool for solving a specific design problem for a client on a specific site. Several methods of land analysis have been proposed and put in practice in recent years.

Another way of speaking of research, and the challenge to landscape architecture described here, is research as a process that provides new knowledge that can be shared by everyone. As a process, research follows rules and forms that have been demonstrated as useful in providing reliable answers. Such answers must go beyond the opinion of one individual, for many reasons.
He may have experienced only a few variables. He may have been misled by success, believing that certain factors were causal when they may have been only coincidental. His sampling may have been biased and not truly representative. And, because of professional competition or ethics of proprietary work, he may not be able to reveal his findings to others. According to Hoover, in *The Elements of Social Scientific Thinking*, research knowledge must be both "transmissible and valid." Although the several disciplines vary in their application of it, the scientific method remains the commonly accepted approach to research.

Simply stated, the scientific method utilizes five basic steps. First, there is the posing of the research question. This question is the one you wish answered by the research. Second is the development of hypotheses. These are statements of possible relationships. For example, the statement that condominium owners are not all alike in their preference of landscape features could be an hypothesis. Hypotheses are guidelines and provide the roadmap for the research. This keeps the study from wandering even though all researchers allow for serendipity. Third, a methodology or procedure is decided upon. Such methodology is based upon proven experience in the field of inquiry--physics may rely heavily upon the experiment whereas social science, upon survey research. Fourth, the results from these experiments, studies, tests or descriptive study are analyzed. Some analysis can be done through rigorous statistical testing. And, finally, the researcher draws conclusions that are most meaningful and applicable, derived from the logic of the study result, especially in the light of other similar research. "The scientific method seeks to test thoughts against reality in a disciplined manner, with each step in the process made explicit," (Hoover).

What does this have to do with landscape architecture? After all, landscape architecture is the creative art of designing new landscapes. Therefore, it demands primarily the artistic skill, intuitive genius and knowledge of the creative landscape architect.
The landscape architect takes the givens of existing land forms and features and, within the goals of a definitive program, visualizes (designs) a new environment. Fundamental to this new environment is beauty as well as function. Stated another way, design must fulfill three functions. **Structural** function assures that the built design will be durable—will not erode, collapse, wear away or deteriorate. **Physical** function assures that the design is adapted to the objects (people, animals, vehicles) that are to make physical use of the designed environment. Finally, **cultural** function provides the added human dimension of beauty and psychological appropriateness. The landscape architect's vision is translated into reality through his drawings, specifications and final construction and planting. This is art, not science. Or, so it would seem.

But, the landscape architect is now involved in a much more complicated design context than in the days of back yard design. Research and technology have provided him with a greater variety of materials than ever before: paving surfacing, lighting, new hybrid plant materials, plastics, treated woods, metals. Research and technology have provided many new methods for reshaping and replanting the land. Earthmovers, cranes, planters, pavers, graders, ditchers and mulchers have changed the landscape architect's ability to create new forms. Research and technology have given him the opportunity of designing landscapes that can be maintained through new methods: irrigation, mowing, herbicides, pesticides. Many of the larger practitioner offices have benefitted from the technical advance of computers, both in problem-solving and in office management. Several methods of computer mapping can now shortcut many man-hours of tedious hand work. But, how many of these have come from the landscape architect's research?

Even more basic is the impact of environmental science on landscape architecture. The utopian's point of view, expressed by the landscape
architect as he creates new and "ideal" landscapes, is being tempered by discovery of the limits of ecological processes. Each site development impacts on other sites. But, have landscape architects taken advantage of their unique position of bridging their social ideals with the realities of environmental science? Moos and Brownstein, in Environment and Utopia, have said that "...social ecological analysis suggests that communities can make more satisfactory use of man-made environments when they achieve intersystem congruence between physical structures and social patterns."

Have landscape architects taken the lead in running scientific experiments on the effectiveness of alternative land designs? Aside from pontifications about designing with nature, have landscape architects been on the cutting edge of environmental research related to their own modification of the environment?

In an earlier and simpler landscape design mode, the landscape architect assumed that the client knew what he wanted in a new environment. As the landscape architect moved out of the back yard and into larger land areas, even regions, the client became less sharply defined, often corporate instead of a single individual. As a consequence, the needs became less clearly defined. In fact, in more instances than not, the contemporary design problem requires considerable front-end study between both the landscape architect and the client to determine the needs of the design. Large land owners, such as the Forest Service and the National Park Service have entered into research studies of their land ownership policies as prerequisite to site design and development for conservation, recreation, timber production and other land use. Economic constraints of the private sector client, such as the housing or industrial park developer, now require much pre-design study.

Furthermore, the client of today is seldom the ultimate user of the environment, as in the days of the home-owner client. Park participants, tourists, housing owners, renters and shopping customers have special
needs from the landscape. It is becoming increasingly evident that the land
owners-developers are not always cognizant of the needs and behavior of these
users. Park landscape architects often turn to "design standards" that may
mislead as much as help because they provide for an "average" user that
does not exist. Better understandings of the user's functions in the land-
scape suggest another landscape architectural research area.

The traditional design sequence in which the landscape architect retains
little or no contact after construction may be contractually acceptable but
falls short of good design for a modern world. Post-construction research
and evaluation could provide insight into the success of design solutions.
Do the residents today function in the landscape as the designers conceptual-
ized yesterday? Do the park users participate in the landscape as the
designers anticipated?

Landscape architecture is now under many legislative stimulants and
contraints that demand answers from research. Probably no other legislative
act of recent years has stimulated more interest in what a landscape architect
does than the National Environmental Policy Act of 1970. The guarantees of
"esthetically and culturally pleasing surroundings" and to "preserve important
historic, cultural and natural aspects of our national heritage" and to "en-
hance the quality of renewable resources" are implicit in this act. These
demand the very skills, intuition and creativity of the experienced land-
scape architect. Yet, is the landscape architect's judgement on the suffi-
ciency of his design enough or should it be tested by objective research?
Today's clients, owners, developers users, governments and other publics
want to know how well certain designs have worked out. If landscape architects,
with good scientific research, do not provide the answers, others will.

Many other acts impinge upon landscape architecture. Before one can de-
sign in the coastal region a landscape architect must have some knowledge of
the Coastal Zone Management Act and how the State is carrying out its role.
For certain projects, the Wild and Scenic Rivers act may have much to do with
complexes, there are many landscape implications within the Interstate Land Sales Full Disclosure Act of 1969 and the subsequent rulings and procedures of the Department of Housing and Urban Development. And, in addition to federal action, the several states and local communities have land use regulations that influence the outcome of landscape design. Studies that show how owners and users react to the design impacts of legislative acts could be very helpful to landscape architects.

It seems that in landscape architecture, the professional today is expected to know much more than he can obtain solely from his own professional career. He is forced to reach toward a landscape architectural knowledge bank that does not yet exist--primarily because research has not been part of his predilection or sphere of training and job specification. In order to perform his professional (artistic, creative, intuitive) role, the landscape architect of today needs research results on a variety of topics essential to his task. And, these are not necessarily specific to each site. Many are of universal value. He needs the outcome of objective studies on landscape materials, land-forming techniques, owner objectives, user functions, user perceptions, environmental durabilities, effectiveness of various maintenance methods, and especially documented measures of the results of his landscape manipulation. Perhaps the profession now needs a journal of landscape architectural research comparable to other scholarly publications. The introduction of "Technik" in Landscape Architecture is a step in this direction.

Who is to do landscape architectural research? Can the traditional site designer be expected to develop the skills and scholarly objectivity required of a researcher? Can his prime purpose--creative design--be diluted into research channels? Probably not. We may need new tracks of professional training.
The profession may now be at a point where the traditional concept is too limited. Long ago, the medical profession recognized the need for a variety of professionals from the skilled surgeon to the research scientist. As in other fields, the education of landscape architects may now need to be directed into several channels, one of which is research. Perhaps every curriculum in landscape architecture should have a course in research methods if for no other reason than to understand the difference between good and bad research.

Educators in landscape architecture may need to include researchers as well as teachers. This shift in policy could help greatly in elevating the esteem of the profession in the eyes of fellow academicians. While the profession relies upon inputs from many supporting disciplines, it is becoming clear that the studies by sociologists, psychologists, horticultural researchers, ecologists, engineers and economists are not always readily adaptable to landscape architecture. Specially trained landscape architects with research skills working with collaborators in these fields may be the ones best able to solve modern landscape problems.

In conclusion, research is an unavoidable, necessary and attainable dimension of landscape architecture. But, it demands new commitment, new training and newly directed creativity. Skill and artistry in design are not enough. Only through research can the profession catch up with the rest of the world to fulfill its original and continuing mission of creating new landscapes for mankind. Created landscapes must meet broad social, economic and environmental needs in order to fulfill the structural, physical and cultural functions of a changing world. Hopefully, the research category in future professional awards programs of ASLA can attract an increasing number of studies meeting both the needs of the profession and the exacting criteria of traditional research.

Clare A. Gunn, Recreation and Parks Department, Texas A&M University
References
