A BETTER UNDERSTANDING
OF THE ROLE OF ENDOSCOPY
AS A TOOL IN ARCHITECTURE

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As the most tool-dependent species on our planet, our technology determines our activities and thus defines our existence. Because of this a clear understanding of the ends-means relationship of our tools is of critical social-and professional-concern.

Endoscopy, or the use of periscopic-like devices to extract human eye-level visual images, static or dynamic, from iconic scale models of proposed environments, is a case in point. Use is appropriate at advanced stages of planning and design, when such experiential simulations are necessary for both professional evaluation and lay approval. But note that the simulation is only a means to an end, and that the fundamental purpose is to evoke a response to a proposal. Simulation and response are opposite sides of the same coin, and the response is the goal.

Any such responses are meaningful only with reference to the ultimate users’ experiential preferences, preferably explicitly established as “performance specifications” before the start of the design process in consultation with a representative sample of these people. This implies the necessity of a means to identify these beneficiaries of our work, and a means to characterize their environmental ”experiential profiles”. It also requires a means for the discursive scripting of their experiential preferences. The development of a design oriented to the achievement of these ends then depends on a similar time-based scoring for the description of sequentially-experienced environmental attributes, hypothesized as related to these responses.
Endoscopy then takes its place as the means for a penultimate check on the experiential design-hypotheses, in conjunction with suitable means to record the simulates’ responses in the same format as the original experiential performance specifications, for comparison therewith.

The danger in being the most tool-dependent species on Earth is that in our necessary concern with technological means we may lose sight of our ultimate human ends; as suggested by the apothegm ”the operation was a success, but the patient died”. Our inexorable impetus toward technological development means that the specialized training that is inherent in professional education tends to separate and distance the perceptions of those so conditioned from those of the many others who are the presumed beneficiaries of their efforts. ¹

Nowhere is this more noticeable than in the architectural profession, where awards for ”design merit” are based on the peer evaluations of semi-abstract photographs of unpopulated building forms, in term of formal aesthetics. In this charade professional competence is publically certified with no reference to the experiences of those who must use the design.

Professional rationalization of this situation takes the form of what has been called the ”art defense”, in which architects claim the freedom and autonomy of artists to pursue non-rational and personal mythological goals. Besides begging the question as to the desirability of having each new project in permanent view in the public realm as a ”self-expression” or a ”personal statement”, this attitude reveals a more fundamental confusion in its implicit polarization of ”art” and ”science”; where, at the creative level, metaphorism and empiricism are in fact of equal importance to both.²

If we are to regard architecture (and any other professional intervention in the physical environment for social purposes) as the implementation of design for the users’ benefit, we are then obligated to have explicit reference to the experiential preferences and goals of the ultimate users of the environment (who are not always the funding
clients). These preferences become our performance specifications, and we are equally obligated to an evaluation of the putative realization of these experiential goals in the built environment by these ultimate users; as our performance achievements. Comparison of these intentions and these results then provide a true measure of "design merit", in which ability is based on the degree of achievement of preestablished goals, and where these goals are the preferred experiences of the actual users.

Precedents for this mode of design exits in the original circumstances of the builder-user, and in the subsequent special case of the custom-designed residence where the architect and the client-user may mutually inform and educate each other. Our challenge is to achieve this mutuality in those more numerous and more significant cases where the users are many, diverse, and individually unknowable.

Implementation of this user-experience approach in architectural-environmental design requires a notational means for the time-based description of the preferred experiences of the several groups identified as the future users of the project. The development of these explicit performance specifications, in collaboration with a representative sample of these people, offers the first opportunity for the exercise of the designer(s) creative imagination.

The next opportunity arises in connection with the planning of the new environment, in practical and experiential terms, to support and encourage these experiences in the course of the ultimate users’ use of the environment, and in the context of their daily lives. These experiential design hypotheses are also best developed in terms of time-based notations describing multisensory experienciable environments, for each category of use and user.

Development of these experiential design hypotheses obviously should be informed by reference to the profiles of the environmental perception-response characteristics of the user-group samples. This data must serve as the basis of the formulations; not the inadequate
<table>
<thead>
<tr>
<th>Real-world user-participants</th>
<th>Environmental managers and operators</th>
<th>Construction contractors and builders</th>
<th>Public regulating agencies</th>
<th>Financial sponsors and investors, public or private</th>
<th>User-participant analogues and surrogates</th>
<th>Designer-innovators, envirotect</th>
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<tbody>
<tr>
<td>SIMULATION TYPE</td>
<td>CONCEPTUAL</td>
<td>PERCEPTUAL</td>
<td></td>
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<tr>
<td>PRESENTATIONAL</td>
<td>Analytic (symbolic)</td>
<td>Laboratory/studio analogic</td>
<td>(homomorphic) iconic</td>
<td>Identity (isomorphic)</td>
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<td>mode static, space-ordered</td>
<td>Mathematical expressions; written specifications</td>
<td>Bubble diagrams of functional arrangements; floor plans, sections, details; topographic maps; engineering drawings</td>
<td>Perspective and elevation sketches, drawings, renderings; scale models; photos and montages</td>
<td>Stage, film, and TV sets; museum &quot;habitat group&quot; displays; window displays</td>
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<td>DISCURSIVE</td>
<td>Time-sequence, behavior circuit diagrams; experience and environment notations</td>
<td>Video tapes, films, slide-sequences from models; scrolls; computer sequences; drawing sequences</td>
<td>Real world itself; operator training devices; full-size working mock-ups</td>
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and inappropriate assumptions of the designer himself or herself as the future user. Here is the third opportunity for the exercise of creativity; in empathy informed by substantive information on physical capabilities, previous learning and experience, and short and long-term situational demands on the anticipated future users.

It is in the testing of these design hypotheses that architectural endoscopy plays its proper role. Moving from the abstract simulation formats of the notations and plans to iconic representation of their experiential qualities in terms of virtual movement through scale models, the advanced design hypotheses become accessible to the lay user-sample, for their responses: for subsequent comparison with the experience performance-specifications. (Figure 1). Iterative development of the design by this process will then converge on a solution in which the user-analogue responses to the simulations are within acceptable limits of the performance requirements. By this means architecture and environmental planning can achieve a measure of predictability, in terms of human experiences, and thus in fact deserve the right to be called ”design”.

In this perspective the proper role of architectural endoscopy in the design process is seen to be as a means of obtaining feed-back from a representative sample of the various anticipated future users of a proposed environment, as to their perceptions of its experiential implications for their activities in their life-context. These lay-responses thus serve to guide the interactive design-development process to an appropriate level of predictive confidence in meeting the experiential performance specifications, previously established in consultation with the future-user analogs.

NOTES

1. ”The idea that human culture is dependent on its technological foundations is at first startling or even offensive, yet reflection will show this to be as obvious as it is undeniable. Chartres would have been impossible
without the craft of the stonemason; the discoveries of
Galileo, which revolutionized man’s view of his position
in the universe, could never have been made without the
skill of the lens grinder; the glories of Bach would not
exist save for the manufacturers of musical instruments.
All human societies — their economic and political
structures and their intellectual cultures as well — are
dependent upon their technological foundations....”

”The fact that technology sets limits to man’s activi-
ties and in large measure defines his existence is no
contemporary or recent phenomenon, although the scope
of the powers bestowed upon him is. From the every
outset of his existence man has been dependent on tech-
nology; in fact it could be argued that technology is what
has made man man” (Victor C. Ferkiss: Technological

2. The growing body of literature on this problem
includes:
Dana Cuff: Architecture: the Story of Practice. Cambridge,
Russell Ellis and Dana Cuff, (eds.): Architects’ People.
H. Broughey; ”Blueprints for Behavior: The Intentions of
Architects to Influence Social Action Through De-
University, 1969.
Peter Stringer: ”The Myths of Architectural Creativity”.
3. A full discussion and description of time-based
notations for the actions, feelings and thoughts of streams
of experience, and of the sequentially-experientablespace,
place and occasion of physical environments, as well as
the transducer, coder and attender-profiling of user-participants in the environment will be found in Philip
Thiel: Environmental Design and Sequential Experi-
ence. Seattle: University of Washington, in press.