RESEARCH-BASED ARCHITECTURE AND THE COMMUNITY HEALTHCARE CONSUMER: A STATEWIDE INITIATIVE

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From the earliest days of environmental design research, a main objective has been to improve the quality of life of building occupants by improving the quality of the built environment. Through the years of studies in healthcare settings, few systematic efforts within a unified protocol have addressed the needs of the user-as-consumer. In response, in 1990 a coordinated, long-term initiative was launched by a statewide public-sector health agency in the United States. The principal objective has been to improve the quality of newly constructed community health facilities for end consumers *as patients and care providers, while recognizing the key role of* intermediate consumers *as owner-clients. This paper offers a status report of this statewide user-focused initiative at the nearly ten-year point in its implementation. In this report, the authors draw distinctions between the roles, the functions, and the sometimes paradoxically disjunctive agendas of* end consumers *and* intermediate consumers. *Successes and challenges are outlined with their implications for facility planning and architecture in the United States and elsewhere.*

INTRODUCTION

Since the late 1960s, the environmental design research community has called for codifying an empirically based foundation of knowledge for the design professions. Advocates have long argued that such a knowledge base should bring together information on user preferences, physiological requirements, well-being, and that which construes meaning in the built environment from the perspective of *end users-as-consumers*. Presumably, by the 1990s such a knowledge-based foundation would have been in the hands of designers and policy makers as an unquestioned component of daily practice. Unfortunately, the track record of work built in recent years shows that this has rarely been the case. Its absence seems ironic. Within the diverse and often disparate constituencies of clients and users which shape the architectural landscape, it is logical to expect that health administrators, practitioners, and patients' rights advocates might be acutely "primed" to welcome knowledge about end consumers of healthcare. They are already primed, that is, in the sense of being sympathetic toward and ready to apply knowledge of *end-consumer* needs in the planning, design, and management of capital resources.

Prior to applied work for agencies by such innovators as Harvey and Vischer (1984) and Carpman's group (Reizenstein, 1982; Carpman, *et al.*, 1985; Carpman and Grant, 1993), the focus of research in healthcare settings had been largely theoretical. This conceptual approach centered on identifying broad principles underlying personal space, territoriality, symbolic spatial affinities, or crowding and density in relation to people's transactional behaviors with the physical setting. Early on, the term *therapeutic environments* had been defined as denoting physiological and psychosocial attributes of individual responsiveness to the degree to which the setting provided support (Canter and Canter, 1979).

Consumer advocacy in architecture, and in healthcare architecture in particular, may well derive from participatory planning and design at the community level in the 1960s. At that time, work with low-income minority and disadvantaged neighborhood groups had been pioneered in the planning profession (Arnstein, 1969; Appleyard, 1970; Clavel, 1994). Nonetheless, a dual dilemma persists in architecture to this day — too little relevant research with an emphasis on research-based design, on the one hand, and its rather slow and episodic assimilation into the mainstream of the architectural and planning professions, on the other.

The multiyear initiative that is the subject of the present discussion has been underway, at this writing, for nearly ten years. Its work for the sole public-sector healthcare provider in the State of Louisiana, the Department of Health and Hospital's Office of Public Health (DHH-OPH), was initially summarized in Refuerzo and Verderber (1991).

The objective of this paper is twofold. (1) An overview presents the program's status to date and the impact of the first wave of renovation and new construction projects completed or underway. (2) In a special focus on clients and users as *consumers*, the paper also discusses the environment-behavior research-based methods and fieldwork procedures developed to draw clients and users into the program meaningfully and with success, as *intermediate* and *end consumers* within the planning and design process. This effort, the *Statewide Facility Improvement* initiative (SFI), is based on a five-volume report prepared at the start of the 1990s (Refuerzo and Verderber, 1991; Verderber, 1992; Verderber and Refuerzo, 1993, 1999).

BACKGROUND

Before fall 1990, the client agency (the Office of Public Health (OPH) of the Department of Health and Hospitals in the State of Louisiana) lacked any facility planning overview whatsoever for new or renovated parish-based health clinics. The procedure for capital improvements remains somewhat Byzantine compared to the modus operandi in most other states for two reasons. First, the state's parishes own and maintain the network of 138 public health clinics. Second, although the staff

operate and administer the programs housed within the clinics, the staff and their superiors lack any legal overview to set planning and design criteria to which all 64 parishes are bound to comply. The agency (OPH) contacted the research-based design team in 1990 to develop a set of minimum standards, "optimum" guidelines (resulting in 140, each one to two pages in length), and a protocol for their systematic implementation. At the core of this network, the community-care clinics provide immunizations, child and maternal care, family planning, care for communicable diseases, various disease prevention programs, WIC services (the Federal women-infant-children nutritional care program), and environmental health services such as safe drinking water, sewage monitoring, milk and seafood monitoring programs, and rabies protection programs.

As of November 1990, 66% of all OPH facilities had been operating in their present building 30 years or longer. Most were obsolete. The continued use of dilapidated facilities was evidence of a pattern of benign neglect on the part of the parishes, lack of knowledge, and the inability of the agency to stimulate interest in the parishes to rectify the situation. Among staff and patients, a climate of learned helplessness predominated (Verderber and Refuerzo, 1993) — a situation resembling the "environmental docility" Powell Lawton described (1979) in characterizing the plight of the institutionalized aged in nursing homes.

PROCEDURE

The research-design team was given the charge of identifying clinics in most dire need of replacement or renovation. The challenge was daunting at first because each parish had been left to its own devices for dealing with its *parish-based health unit*. The results had been extremely uneven across parishes, with one often doing far less than its neighboring counterpart without coordination or strategic oversight. Suffice to say, this ad hoc approach yielded wildly disparate outcomes. In a rather unusual arrangement, though, perhaps not unparalleled in the United States, the public-health facilities are built, owned, and maintained by local government, yet wholly staffed and operated by the state-level DHH-OPH. Even facilities built as recently as the late 1980s, with a few exceptions, were disappointments to a certain extent because they were often "designed" by persons at the local level with little or no healthcare experience whatsoever or suffered from underfunded construction budgets. Some parishes had hired architects; many did not. In the worst cases contractors speedily drew up plans on graph paper and proceeded into construction with hardly any input from the clinic's actual users. The three layers of policy makers — at the state level centered in New Orleans, at the regional level of the nine regions in the state, and at the local level of the *parish council*, or *police jury* — remained uncoordinated in terms of the specifics of clinic facility planning and design knowledge. There was, therefore, little incentive for communication among parishes. In short, while the operation and staffing of the clinics *was* highly coordinated across all facilities at the state level, their design and construction was highly uncoordinated at the parish level. Each parish basically did its own thing, for better or worse.

After the five-volume report was completed (Refuerzo and Verderber, 1991), a protocol was developed whereby the research-design team would be "on call." The region administrator, encouraged by the head of OPH, the Assistant Secretary, was mandated to draw the research-design team into various projects from the beginning as sites were being studied and construction budgets set. At no direct cost to the project, the agency made available additional services that included programming, translation of the design guidelines into schematic design, design review, and post-occupancy evaluations of completed projects. To date, six clinics have been designed or renovated entirely by the research-design team. Annually, this protocol is reviewed and updated to improve its overall effectiveness in the field.

TABLE 1. Statewide facility improvement initiatives (1991-1999).

Region[a]	Completed Projects	New Construction (Y/N)	Renovation (Y/N)	Adaptive Use[b] (Y/N)	Planning Phase (months)[c]	Construction Phase (months)[d]	Square Feet (BNSF)[e]	Expenditure[f]
1(12)	4	N(-)[g]	Y (1)	Y (3)	7.6	9.8	8023 (32099)	641644 (2.57M)
2(13)*	5	Y (4)	Y (1)	—	14.8	9.6	4885 (24425)	711100 (3.56M)
3(14)**	5	Y (1)	Y (1)	Y (3)	11.2	10.1	6237 (31185)	598940 (2.99M)
4(18)***	5	Y (4)	—	Y (1)	9.6	12.8	5748 (28740)	460800 (2.3M)
5(12)	5	Y (5)	—	—	21.4	11.6	7627 (43862)	701223 (2.92M)
6(15)	3	—	—	Y (3)	8.8	9.5	3627 (10880)	216333 (.649M)
7(16)	5	Y (2)	—	Y (3)	10.3	10.7	8666 (43330)	696000 (3.48M)
8(16)	6	Y (5)	—	Y (1)	13.3	12.4	7579 (45475)	715833 (4.29M)
9(10)	4	Y (3)	—	Y (1)	18.5	11.7	8674 (34695)	961250 (3.85M)
Total	42	24	3	15	12.8	10.8	6735 (272340)	633690 (26.7M)

[a] Project data reported through 7/1/99. Number in parentheses denotes total program sites in Region (with exception of school-based clinics).
[b] Certain projects involve combination of either new and/or renovated or adaptive strategies.
[c] Mean across projects reported in months.
[d] Mean across projects reported in months.
[e] Mean BNSF denotes Building Net Square Feet. Number in parentheses denotes total net square feet.
[f] Mean total project cost, including land acquisition, site improvements, parking areas, access drives, signage, landscaping, furnishing equipment, and building (in millions). Number in parentheses denotes total capital expenditure.
[g] Number in parentheses denotes total capital expenditure within a Region (in millions). Y denotes new replacement facilities have been built. N denotes no replacement facilities.

*1 facility closed since 1991.
**2 facilities closed since 1991.
***5 facilities closed since 1991.

RESULTS

A statistical profile of the program from 1990-1999 is presented below, accompanied by *narratives* of a subset of projects completed from the standpoint of strengths, weaknesses, opportunities presented, as well as inherent difficulties within the process. A summary is presented in Table 1. The 42 completed projects are listed by region, with the number in each region listed. Of these completed projects, 24 led to a completely new replacement facility; three resulted in renovation of an existing clinic; and 15 adapted an existing structure for use as the clinic. The average length of the project planning phase, beginning with the inception of the approval to proceed from the local parish officials, was 12.8 months.

At the start of the effort (1990), each facility was assessed in comparison to all others. This was based on the ratings of the users as reported in the statewide facility surveys ($N = 138$). The facility rankings were based on three sources of information: first-hand experience of the direct consumer (empirical survey data), first-hand experience of the regional staff-as-consumer (verbal composites), and information acquired first-hand by the research-design team in the field (post-occupancy evaluation data). Together, this information was translated into a four-point scale to reflect the degree of architectural intervention called for. These four levels of priority for improvement were: (1) urgent priority, (2) high priority, (3) moderate priority, and (4) no modification to the facility needed at this time. The highest priority was assigned to only the most deplorable, dysfunctional, overcrowded clinics, and the lowest priority to the most recently replaced clinics (even though, as mentioned, some of the clinics built in the 1980s were built with significant design flaws, for various reasons). In Figure 1, the region-by-region (R1-R9) before/after rating of every clinic and support program site is reported. The before rating, therefore, is the *pre*-intervention rating (1990-1991) and the latter the *post*-intervention rating (1998-1999).

The program has been an un-qualified success when judged against almost any performance standard. It is noteworthy that there have been *no reported* instances of the involvement of the research-design team having had an adverse effect on the quality of any capital improvement project. This track record covers the nine-and-a-half-year period from the standpoint of intermediate consumers as well as end consumers.

As for the specifics of a typical architectural intervention at the parish level, Figure 2 illustrates an annotated plan of a clinic designed by the research-design team. On the plan, call-outs (notes) list key architectural attributes grounded in environment-behavior issues. These attributes are the direct consequence of a participatory process consisting of meetings and interactive work sessions during the design sequence. The team meets with parish officials to determine and debate construction budgets. Various sites are examined and assessed from a due diligence standpoint. Recommendations of the best site(s) are put forth to
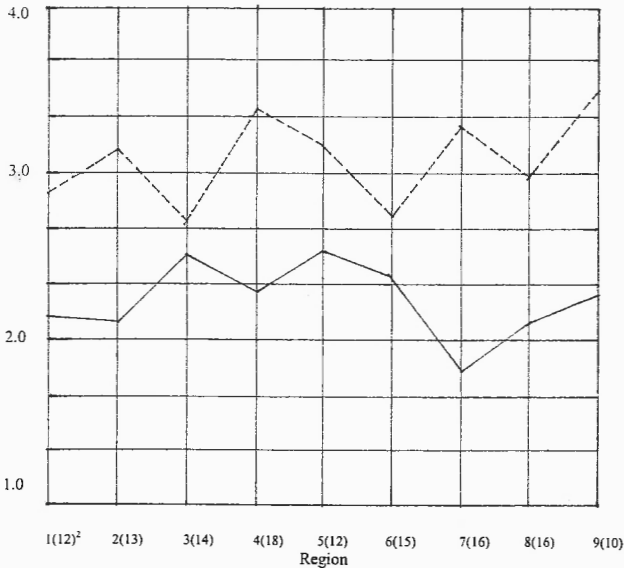

Figure 1: Statewide Capital Improvement Priority[1]

——— 1990-1991   Fiscal Year
- - - - 1998-1999   Fiscal Year

[1]Four point need assessment scale: 1=urgent priority; 2= high priority; 3= moderate priority; 4= no modification needed.
[2] Number in parenthesis denotes number of freestanding program sites in Region (not including 16 school-based clinics).

FIGURE 1.

parish elected officials, architectural programming commences, and the project leads into the various phases of traditional architectural services. These phases consist of schematic design, design development, construction documents, the bidding phase, and construction management.

DISCUSSION

The data reported describe a multiyear, multifaceted protocol to engage consumers in the community healthcare facility planning and design process. This work is based in the public sector, supported by a statewide health agency. Unprecedented progress has been made to date in Louisiana, although as many as thirty additional facilities remain in need of replacement or in-place renovation. This effort, referred to above as the *Statewide Facility Improvement* initiative or SFI, has been continually evolving.

The status of this initiative has been reported here from the specific standpoint of *intermediate consumers* and *end consumers*. The constituency of *intermediate consumers* represents local officials, specifically, the *parish council* or *police jury* — a political entity dating from 1801, a period prior to the Louisiana Purchase, and reaffirmed most recently by the 1973 Louisiana State Constitution. Its twentieth-century incarnation dates from the devastating flood of 1927 and the 1930s populism of Governor Huey P. Long. Each parish is to provide and maintain at least one community public health facility within its jurisdiction. Most clinics started out in hand-me-down quarters in the basements of the parish courthouse. The occupants, in the worst cases, have endured decades of benign neglect

1. Accessible Parking : Direct access to all entrances; zoned to create separate area for staff.

2. Deinstitutionalized Healthcare Institution: human scale achieved through array of volumes to comfort and assist - - not intimidate the user.

3. Demassification: Existing building envelope is articulated by additive/subtractive volumes which afford view, contact with nature, wayfinding amenity.

4. Examination Rooms: Autonomous one-stop treatment; adjacent to subwaiting room, activated by skylight/clerestories.

5. Patient Confidentiality: Privacy is of high priority throughout facility; acoustical separation achieved through materiality/proxemic relationships.

6. Daylight/Screening: Natural daylight transmitted into spaces below; filtered though clerestories, grids, semi-engaged ceiling planes.

7. Structures Within an Adapted Industrial Structure: Major functional components expressed as "buildings"-- creation of clinical village, as defined in classical terms.

8. Waiting/Reception: An inviting, flexible space functions as symbolic marker and orientation element.

9. Exterior Play Yard: A space dedicated to children provides direct access to mothers in adjacent waiting room.

10. Screened/Shaded Entry: Overhead canopy provides sunscreen and amenity to patients/visitors; also functions as emergency overflow waiting area.

11. Barrier-free Health Unit: Designed for use by all age groups; the developmentally disabled, and handicapped.

12. Environmental Health Unit : Freestanding structure; construct if funds are available at this time; include in Phase II construction.

13. Positive Outdoor Space: Shaded, protected transition/entry space adjacent to environmental health unit and secondary entrance to health unit.

14. Transparency: Numerous layers-- horizontal and vertical-- established to create transitional spaces, articulate major functional components (offices, clinic, waiting, intake, etc), and afford privacy (wall, screen, grid).

15. Flexibility: Interior spaces can accommodate changing occupant needs, future expansion on-site.

16. Materiality: Wood, metal, masonry, glass, tile; analogical dialogue/coding.

17. Clerical/Administrative Support: Direct access to intake booths, registration desk, records, and nursing offices.

18. Secure Entry Nodes: Provide direct, secure access to clinic areas; controlled access 24 hours.
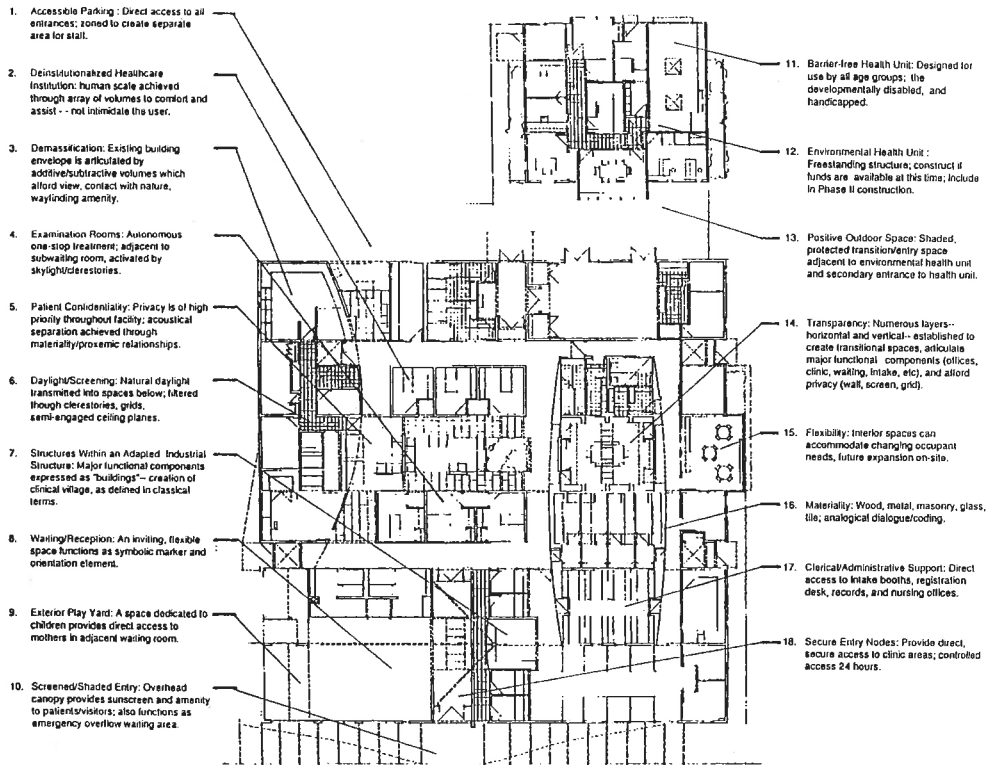
FIGURE 2. Annotated plan.

from a facility standpoint. The constituency of *end consumers* here represents two groups: the staff who operate the care settings and the patients who receive treatment in these care settings.

Ironically, in this scenario, while the *end consumers* actually deliver (and receive) a broad palette of preventative and treatment programs, they hold, somewhat paradoxically by comparison, little actual control over their own environments. The *intermediate consumer* is the body empowered to determine the budget, location, contents, persons who will design and construct it, and overall architectural quality of the healthcare environment.

In the extreme case, these constituencies, at times, demonstrate paradoxically disjunctive agendas. It remains somewhat perplexing that, despite the concerted effort of the research-design team to achieve parity and quality control across all parishes regarding capital improvements on behalf of local clinic staff and patients, the role and impact of the patient-as-end-consumer and the clinic staff too often remain informal and, therefore, have uneven impact from parish to parish. As a result, the patients and staff generally lack a collective political voice within a highly political process. At times the needs of the patient are extremely remote from the political spotlight because the patients of the health units are often among the poorest residents of the parish. Traditionally, power is held by the parish officials-as-intermediate-consumers in a patronage-driven system in which parish officials function as the owner and steward of the health unit.

With this said, however, and despite the odds at times, the progress made during the decade of the 1990s to improve the quality of the OPH network of community-based clinics across the 64 parishes in the state of Louisiana has been significant, by all accounts, and is one of the longest-running

efforts to date in the history of the field of environment-behavior, particularly with respect to its intersection with the practice of architecture. The voice and concerns of the end consumer have fueled this process because the research-design team has functioned continuously in an advocacy role on behalf of staff and patients as the ultimate consumers, as they are the ones for whom the facilities exist.

PLANNING AND DESIGN IMPLICATIONS: THREE CONSUMER CONSTITUENCIES

The following are some key implications of the SFI program from the standpoint of three main participants in the process.

Clinic Staff as *End* Consumers

1. The central administration does, indeed, care about the nurses, clerical staff, and environmental health specialists and their day-to-day working conditions.

2. The availability of consistent, data-driven, generalizable, yet flexible, planning and design guidelines precludes any need for continually reinventing the wheel on a parish-by-parish basis.

3. The staff gains increased stature in the eyes of local officials, knowing that the local clinic staff has done its homework properly.

Patients and Visitors as *End* Consumers

1. Patients, most of whom are recipients of Medicaid or Medicare, become empowered by the interest shown in their specific needs as care recipients. This fact alone has had a positive effect on patient involvement in one's own healthcare and that of one's children. In addition, ample anecdotal evidence suggests that the new and renovated clinics have been shown to manifest a significant increase in patient morale.

2. In cases where a complete replacement facility has been built, the community's use of the new facility has increased most dramatically. This *halo effect* has typically resulted in a 15-20% increase in community utilization.

Local Government Officials as *Intermediate* Consumers

1. The design guidelines and the direct intervention of the research-based design team have greatly decreased governmental uncertainty and reluctance to embark on a replacement facility initiative. The expertise provided to them (at no cost) by the state agency has been invaluable.

2. A given parish's facility is but one of many in a single care system. There is no longer the need to reinvent the round and square wheel: "War stories" are an aid, in this sense, to local officials as well as a source of empowerment to them.

Architecture and Engineering Professionals: A Fourth Constituency?

If a fourth consumer constituency exists, it is that of the local architectural and engineering professionals contracted to provide their services to a given parish. The information available to them through the SFI program has been a tremendous aid in their work at the local level. Here, the local architects also function as consumers of the SFI information. The local architect, by plugging into the protocol, functions as an *intermediate* consumer together with the parish-based elected officials who hire them.

PLANNING AND DESIGN IMPLICATIONS: POLITICAL DIMENSIONS

The following points are likely to be of interest to many people involved in the political dimensions of a fundamentally consumer-based healthcare architecture:

1. *Start early.* The earlier the architect or architect-as-researcher enters the planning process, the better. Do the due diligence and the background homework necessary to ensure the highest quality facility possible.

2. *Involve all three consumer constituencies from the outset.* Do not pay too much attention to any one constituency at the expense of the others. Imbalance will result in resentment, miscommunication, and avoidable problems down the road for the facility planning and design team.

3. *Select the sites and establish the project scope early on.* Do not allow well-meaning people who are essentially laypersons to establish project need, scope, and project budgets without the input of architects and/or facility planning and design professionals. It is difficult to be brought on board too late in the process, after key decisions have been made on the project's scope and the construction budget has become final.

4. *Attend all pertinent meetings, or send a key representative.* This ensures continuity. Always remain cognizant of the old adage — "out of sight, out of mind."

5. *Persevere against the odds.* In the public sector, the layers of bureaucracy can be fatiguing and nearly overwhelming at times. It is a tedious process, but one must push on through to achieve breakthroughs, and even periodic breakthroughs can turn out to be setbacks further into the project. It is a process requiring patience: take one step at a time. Trying to do too much too soon will result in failure, especially when working with public sector clients. Establish key alliances early on. Identify advocates, allies, and critics early on in the process.

6. *Build upon your successes.* Establish a successful track record of completed projects. This speaks much more loudly than any words or prospectus reports. At the same time, do not be afraid to learn from your mistakes. Most elected officials make enough mistakes on their own. However, they expect the architects they hire to make them look good in the eyes of their voter constituencies — yet another consumer group which has a bearing on the healthcare procurement and design process in the public civic sector.

Embedded in the work with these three consumer constituencies is the importance of engendering a sense of *involvement* in the community healthcare planning and design process and the value of setting high standards of quality in architecture. The community is the ultimate end consumer, just as a lead actor occupies a position of centrality in a play. The "value-added" component during the past decade of the SFI has been a heightened awareness of the importance of building a quality clinical-care setting. A stark, windowless, ubiquitous steel-shed structure indistinguishable from a nondescript farm structure will no longer suffice. No longer acceptable are roughshod attempts to shoehorn a clinic into ill-suited local abandoned buildings, such as a dilapidated storefront structure. The health clinic's status as a civic amenity that plays a central role in the daily life of the community deserves no less than to be valued equally with the local public library and the schools.

Increasing the actual and perceived value of healthcare clinics requires creating a community learning curve as an interventional tool within the political process. Officials need to make site visits to other recently opened clinics built on the research-design team's guidelines; staff and local officials need to hold question/answer sessions in private and public forums; and participants need to meet with local civic advocacy groups. The process must inculcate a favorably predisposed mindset, instill favorable cognitive representations, and demonstrate the political benefits of providing research-design services and the value-added amenity of a high-quality community health center. Taken together, these points are prerequisite to success.

For healthcare consumers, involvement in planning and design on a fundamental level with one's immediate clinical-care environment carries deep-rooted significance for the meaning of places. It is important for the healthcare consumer to establish and maintain meaningful involvement with one's own parish-based clinic, for this sense of belonging underlies the enduring human predilection to seek out known and preferred environments which one prefers over other, uncertain environments (Kaplan and Kaplan, 1982).

CONCLUSION

The decade-long SFI initiative has been challenging from the standpoint, within the state of Louisiana, of creating and maintaining a consistent architectural yardstick in light of widely divergent and often fluctuating political, budgetary, demographic, and even ideological constraints. It is an understatement to assert that no two assignments have been alike. Throughout this decade of effort, the patients, clinic staff, administrators, and politicians have been remarkably receptive and encouraging of the SFI protocol. To these consumers this process has been a win-win proposition. The research-design team's advocacy on behalf of the end consumer provides a significant boost to the goal, at the grassroots level of engagement, to improve the environment of work and healthcare. At the same time, the research-design team's intervention has provided a valuable second opinion to local officials. In turn, local elected officials respect local clinic personnel for having done their background homework thoroughly before seeking funds for construction or renovation.

On a broader level, the term *healthcare consumer* came into use in the 1990s primarily in the private sector in the United States, and the term typically has not been applied to patients and care settings in the public sector. This appears to be a bias firmly grounded in the health culture of the for-profit marketplace. In that arena, intense competition for certain "paying" patients and costly marketing campaigns, waged by for-profit health maintenance organizations (HMOs) to maximize patient enrollment, have become the norm. It is these paying consumers, through third-party private insurers, who remain the focus of the mammoth for-profit marketing expenditures in the twelve billion-dollar-per-year HMO industry. The private-sector HMO provider markets its wares to attract the maximum number of "desirable" patients, providers, and consumers into its network of care.

On the other hand, public-sector experiments with managed care are underway in many locales, but most of these efforts do not define or target consumers in the same manner as do for-profit providers and insurers. It is widely known that, on a per-square-foot basis, the amount of capital investment in high-quality healthcare facilities in the not-for-profit sector of the industry remains paltry by comparison to investment in high-quality facilities in the for-profit sector. Unfortunately, as a result, public-sector patients and the staff who care for them are generally required to work with facilities of significantly lower quality than in the private sector, from the perspective of both environmental design and quality of care. Despite the odds, public-sector staff and patients continue, even in the worst facilities, to function heroically. In the most extremely dysfunctional cases, staff must strive daily to provide patient care in shockingly inadequate physical settings. These heavy demands on public-sector staff are hardly compensated by their comparatively inadequate salaries and relatively low status as bona-fide healthcare provider-consumers compared to their counterparts in the private sector. This situation warrants a thorough national reappraisal in light of the estimated 44 million people in the United States who in 2001 still lack health insurance.

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