

大学キャンパスの計画デザインについての行動心理学

Behavioral and Psychological Considerations in the Planning and Design of a University Campus

ラッカム, デービット W. RACKHAM, David W.

● 国際基督教大学
International Christian University

服部 純子 HATTORI, Sumiko

● 国際基督教大学教育研究所
Institute for Educational Research and Service, International Christian University



キャンパス環境, デザイン計画, 使用者の必要評価, 使命への環境適応

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ABSTRACT

本論は、大学のキャンパス環境と大学の教育使命の重要なつながりに焦点をあてた研究を目的とする。本論では、大学のキャンパス環境全体に特に重点をおき、労働や生活する環境へのデザインおよび評価に、心理学的見地の理論および方法論をとり入れる重要性を論じる。今回は、インターネット上の日本国内外の大学案内を用いて調査をし、各大学の掲げる教育目標が達成可能となるように、キャンパス環境が果たす役割を、大学機関が認知できるように明記した。本論は、米国のオハイオ州立大学のキャンパスデザイン計画の原則を基本に施行した、国際基督教大学（三鷹）のキャンパス環境に対する事例研究に基づいている。本調査結果は、現況のキャンパス環境全体の幾つかの限界点を示すと同時に、また、大学が提唱する教育使命の遂行を最大限可能とする為に、キャンパス環境への使用者の必要および応答への評価の重要性を指摘した。

Introduction

All human activity takes place in an environmental context, whether it be physical, social, natural, built, or a combination of all these contexts. Environments that support the functions envisioned for them produce more effective, efficient and successful outcomes than environments that are less than optimal for the intended purpose. The transactions between people and their environments are reciprocal with specific environments providing varying degrees of support for a particular range of human activities and, conversely, undergoing change and transformation themselves as a result of such activities. This two-way relationship is always in flux and produces the context for the range of human activity planned for a particular environmental context.

A significant portion of our lives is spent in learning environments at the primary, secondary and tertiary levels. The learning environment in both its physical and social dimensions can have a significant impact on the welfare of the students and faculty engaged in study at an educational institution. It can be a factor in determining how attractive the educational environment is to potential students. It can affect the educational experience itself in terms of the extent to which the stated mandate of the institution can be realized in daily practice. The physical infrastructure of an institution serves to create an atmosphere unique to a particular institution.

While all learning environments have a physical context, the term “campus” tends to be reserved for colleges and universities. In the original Latin, “campus” means plain or field, an open space. A university campus

typically occupies a geographical area and consists of various combinations of natural and built elements. The focus of this paper is campus design as it relates to the educational mandate of an institution. After considering the role of the university campus in general, attention will be directed in particular to the campus of the International Christian University situated in Mitaka, Tokyo, Japan.

In an earlier study, Rackham (2000) compared student evaluations of more natural aspects of the campus environment of International Christian University (ICU) to their responses to a typical urban street scene in the Shinjuku district of Tokyo. He found that scenes depicting the ICU campus were perceived to be considerably more attractive and pleasurable than the contrasting Shinjuku street scene, and also more relaxing and calming. Possible explanations for the overall favorable impressions of the ICU campus were couched in terms of the restorative aspects of the more natural aspects of the campus environment and the enhancement of the educational experience and opportunities afforded by immersion in a more natural setting. These results were consistent with those of investigators such as Kaplan (1975, cited by Hodgson and Thayer, 1970), Ulrich (1981), Appleyard and Lintel (1972, cited by Nasar, 1988), Peterson (1967, cited by Nasar, 1988), all of whom found that people have an overall preference for more natural, compared to more urban, scenes. As Kaplan and Kaplan (1992) have argued, “Aesthetic reaction is an indication of an environment where effective human functioning is more likely to occur.” (p. 10). As Gifford (1997), Ulrich (1984), and Ulrich, Simons, Miles and Zelson (1991) have all pointed out, more natural environments

function as restorative agents, thus meeting an essential human need. As Haemoid (1982) has argued, more natural environments such as a traditional university campus, provide a kind of cognitive freedom that facilitates the learning process. The agents of this restorative effect may be positive emotions (Mehrabian and Russell, 1974), stress dissipation (Cohen, 1978), or fascination (Kaplan and Kaplan, 1992) energizing a passion for learning.

Results such as those outlined above point to the importance of preserving university campus environments of the more traditional sort even in this age of the virtual classroom and the corporate university. By maintaining a harmonious blend of the “natural” and the “built” on a university campus, the aesthetic needs of students, faculty and staff are more likely to be met. This, in turn, may result in a more meaningful and productive university experience for all concerned.

The purpose of a university campus is to enable the learning process in its multiple dimensions. Gifford (1997) contends that the contextual ambience provided by a university campus should be a significant consideration for university planners in their efforts to cultivate learning environments rich in both curricular (formal) and extra-curricular learning opportunities. Given recent technological developments, the nature of learning environments is in flux. The physical spaces that constitute the learning environments of the future will have to incorporate the best elements of traditional and future design. It is also important to recognize, as Orr (1992, p. 105) argues, that:

“Every educational institution processes not only ideas and students but resources

... The sources ... and sinks ... are the least-discussed places in the contemporary curriculum. For the most part, these flows occur out of sight and mind of both students and faculty. Yet they are the most tangible connections between the campus and the world beyond. The study of resource flows transcends disciplinary boundaries; it connects the foreground of experience with the background of larger issues and more distant places ...”

Orr goes on to suggest that universities should strive to avoid the kind of hypocrisy in the management of their campus environments that can all too easily flow from a discordance between what may be taught regarding sustainable environmental management in the world at large and what is practiced in day to day management of a microcosm of that wider environment, the campus environment.

In a recent volume on educational environments edited by Roger Yee (2002), the following passage is found on the inside front cover of the jacket:

Equally important, the outstanding architecture and interior design featured in *Educational Environments* illustrate how educational facilities create value for their owners, making long-term investments in building products, interior furnishings, and technological infrastructure to establish enduring physical assets that optimize life costs. Indeed, the book offers proof that today’s best educational projects are exceptionally functional, economical, energy conserving, easily maintained, adaptable and appealing.

In the preface to the same volume, Pamela K. Stewart (2002), President of the Society for College and University Planning in the United States, argues that:

The changes and opportunities in higher education today and tomorrow are legion. Virtual and corporate universities now compete with traditional methods of learning delivery. Shifting student demographics and expectations demand constant reevaluation of institutional products and service.... It is within this context that the effort to create the learning environments of the future will proceed. Education is now an 'any time, any place' activity. No longer dependent on the classroom for the transmission and receipt of knowledge, both teachers and students will inform the design of future learning environments.

Despite the ongoing proliferation of virtual and corporate university-level learning environments, as Pamela Stewart points out, it seems that the traditional campus environment will remain with us for some time to come. The challenge for university planners is to maximize the functional and aesthetic aspects of these campus environments in a way that incorporates the best of the old and the new, creating in the process distinctive and highly attractive learning environments for the students, faculty, researchers and staff members who create collectively the essence of the university experience.

When issues of campus planning and design arise, architects and landscape designers are the professionals whose services are thought to be the most relevant. However, the

fact that the campus will be a place where human beings live and work together suggests that human attitudes, beliefs, cognitions and behaviors are equally important considerations. How will the intended users respond to the campus environment? Will the campus environment provide an effective blend of the functional and the aesthetic to enable the learning purposes for which the university has been established in the first place? What are the consequences of poor campus design in general or poor or ineffective design of specialized facilities, in particular? These are questions to which environmental psychologists may help to provide meaningful answers in collaboration with architects and landscape designers.

Environmental psychology is a specialized area of psychology that studies the reciprocal relationships between human beings and their natural and built environments. Environmental psychologists have much to contribute to the process of architectural and landscape design, understanding, as they do, the ways in which a given environment, in its functional and aesthetic dimensions, may "make or break" a human activity planned for that environment. The use of psychological theories and methods can, therefore, be of considerable importance in the processes of environmental design and evaluation. One particular area where this knowledge can be put to good use is in the design and evaluation of university and college campuses which aim at providing and sustaining environments that nurture the learning process. Environmental psychologists can be the catalysts for designers wishing to create an effective union of the aesthetic and the utilitarian in an institutional design.

On the home page of the Psychology

Department at the University of British Columbia in Vancouver, Canada, a description of the role of environmental psychology in architecture and design can be found (<http://www.psych.ubc.ca/~enviropsych/ArchiDes.html>; downloaded November 6th, 2003). This role subsumes such important issues as (1) optimum utilization of space and aesthetics of the physical infrastructure, both internal and external, (2) ergonomics or human factors engineering and design (how human beings interact with machine systems), (3) ecological factors such as the background physical ambience (noise, light, temperature, etc.) in a facility plus the designing of “green” facilities that minimize any negative impact they may have on the environment, and (4) optimizing the design for special needs related to disability or cultural prerogatives.

In short, bringing a psychological perspective, both theoretical and methodological, to the campus design process is likely to maximize the effectiveness of a university campus as a learning environment with a unique aesthetic and functional ambience. Knowing how the individual responds to a particular environment, or how that environment enables or inhibits a particular activity planned for that environment, can help to ensure that the environment in question, whether it be the campus at large, a particular building or facility on the campus, or a particular room or facility within a building, meets the expectations of its designers and users. Some have argued that the campus environment serves, in fact, as a metaphor for the mission or *raison d'être* of the institution, reflecting in a physical or “concrete” way the priorities which that institution declares as being essential to its educational mission.

Examples of Universities Promoting Their Campus Environments as Learning Environments

Many universities pride themselves on their campus environment which is seen not only as providing a special context for learning but also as a tangible expression of the uniqueness of that particular university. Many examples can be cited pointing to the importance educators, administrators, and students still attach to the traditional campus as the foundation of their learning environments. On their Internet websites, for example, many universities highlight the uniqueness and advantages of their campus environments, and many offer virtual tours of their campuses in an effort to attract future students. Some are candid enough to point to the limitations of their present campus environment and how they hope to overcome these limitations in the future. The importance of the campus environment, as indicated in promotional material available on the Internet for a number of overseas universities, is seen in the following examples:

- **Georgia Southern University.** This university makes a strong commitment to a healthy campus environment, pointing to its unique beauty associated with integrated wetlands and forested habitats which form the natural context for the built infrastructure. Native flora and fauna provide an ecological context for the university, helping to define its placement in the constituency it is designed to serve. These “natural resources” represent a research, teaching and public relations opportunity for the university. (<http://www.bio.gasou.edu/GSEN/.html>; downloaded November

6th, 2003).

- **Massachusetts Institute of Technology (MIT).** The importance of the campus environment is reflected in the following statement by President Charles M. Vest: “I believe the buildings on this extraordinary campus should be as diverse, innovative and audacious as the community they support. They should stand as a metaphor for the ingenuity at work inside them.” This statement derives from the realization that “The overall lack of sufficient flexible, aesthetically satisfying and welcoming spaces at the Institute has limited the kinds of informal interactions that can lead to more profound learning, inside and outside the classroom and laboratory. That’s why campus planning is now guided by principles such as communication, connectivity, flexibility, compatibility, comfort, economy and accessibility The building projects on campus will dramatically enhance our facilities devoted specifically to research and teaching. At the same time - and in some ways, for the first time - they will help kindle a new sense of intellectual and social community ... and make MIT a stimulating and satisfying place to live, work and play.” (<http://web.mit.edu/giving/priorities/campus/index.html>; downloaded November 6th, 2003).
- **Northern Illinois University (NIU).** Acknowledging that the physical characteristics of a campus play an important role in forming an overall impression of a university, this institution concedes that its campus could be more welcoming, more “disability-friendly”, and have more buildings with “character” than presently exist. It is acknowledged that significant

improvements could be made in these areas, and others, to promote the attractiveness of the institution to students and to enhance the educational mission of the university. (<http://www.orientation.niu.edu/orientation/vtour/Index.htm>; downloaded November 6th, 2003.)

- **University of California, Riverside.** In its Campus Environment Report, this university sets forth a set of priorities for the institution including an emphasis on the natural beauty of the campus, the importance of the “commons” as a central core, and making the university more user friendly (<http://vision2010.ucr.edu/cp/tg/report/environ.htm>; downloaded November 6th, 2003).
- **University of Nevada at Las Vegas.** In the description of its campus, The University of Nevada at Las Vegas says that “A desert botanical garden and well-maintained green spaces in the interior campus make UNLV feel like it is “a place apart” from the city even though it is surrounded by metropolitan Las Vegas. However, students and faculty generally agree that the university lacks a common sense of purpose and a cohesive sense of community which make working conditions less supportive than they might otherwise be. In the minds of some people, these “psychological states of mind” were encouraged by the rapid growth of the university without the kind of careful planning that would foster a sense of community as reflected in a shared common set of values and goals. (http://www.unlv.edu/studenterv/interim_report/campus.html; downloaded November 6th, 2003).
- **University of Wisconsin at Madison.** This

university developed a discussion series in 1999 under the title "A Landscape for Learning: The Environmental History and Future of the UW-Madison Campus." Among the arguments presented was the need to encourage the use of "the campus, itself as a focus of environmental learning and innovation, not just a platform for studying other environments." Particular themes addressed related to the pre-campus history of area, including climatic, geological and ecological heritages, the campus as classroom and laboratory, visions of the "built" and "natural" campus, and the campus as a learning environment. (http://www.news.wisc.edu/wisweek/91-99/Wisweek_02120208.html; downloaded November 6th, 2003).

- **National Chung Cheng University.** Located outside the city of Chia-yu, Taiwan, this university makes a special effort on its website to promote the beauty (a beautiful park with security and openness) and elegance of its campus environment, emphasizing the way in which the various elements of the campus, both natural and built, serve to promote the educational mission of the university. For example, the administration building, with its pyramidal shape, is said to promote "a strong sense of solidarity among the university members." The promotional literature proclaims that "It is a great pleasure to study and research in this spacious and tranquil environment... and the buildings for the seven Colleges are interspersed in a park-like campus, each with its unique architectural style symbolic of its purpose and individuality. They all house various resting areas, student run cafes and small courtyards."

(<http://www.ccu.edu.tw/english/campus.htm>; downloaded Nov. 6th, 2003).

- **Shih Hsin University.** Also located on the outskirts of Taipei, Taiwan, this institution also places great importance on its campus environment, both built and natural. "The moment you enter, you can sense that Shih Hsin is something special, is different from any other university." Special reference is made to "striking architecture and wide crafted spaces" which give the university "a new look to go along with its new name." The outdoor theatre and free speech plaza are touted as campus amenities that enable students to express their talent and creativity in ways that can be sensed throughout the campus. (http://www.shu.edu.tw/English/english_index1-8.htm; downloaded November 6th, 2003).

It is clear from the examples cited above, and many others which could be cited, that many university administrators are well aware of the role their campus environment plays both as the essential infrastructure of their institutions and as a vehicle for recruiting and retaining a viable student body. They have made deliberate efforts to translate this awareness into a campus design which promotes the institution as a unique and special learning environment which can be found nowhere else.

The Significance of the Campus Environment in Japanese Colleges and Universities

A survey was conducted of websites maintained by individual university including Obunsha Company (October, 2003) on 30

universities in Japan selected by the Ministry of Education (2001). The websites provided little information on their natural campus environments, including historical culture. Rather, reference was made more to student club activities, annual events of a sporting or cultural nature, research facilities, dormitories, and libraries.

In the current age of a declining student pool for university recruitment in Japan, institutions seem to be trying harder than they did in the past to distinguish themselves in ways they consider would be attractive to potential students. However, when describing the attractions of their institution, many universities fail to mention their campus environment and the pedagogical role it may play for students and faculty. Others do refer to their campus environment but in a rather muted way as to imply that the campus environment is really not that important to the overall educational mandate of the university. Some universities make explicit reference to the pedagogical role of their campus environments.

The Internet sites of several of these institutions were examined in more detail by the present authors to determine what importance each institution places on their campus environment as a vehicle for promoting the uniqueness of the educational opportunities available at that university. Examples of references to the campus environment made by selected Japanese universities follow:

- **The University of Tokyo.** Mention is made of its two campuses located in a rich green space in the downtown Tokyo area.
- **Kyoto University.** This national university is said to be favorably located in the ancient capital with tangible and intangible assets.

- **Hokkaido University.** This university seeks to promote a broad-minded academic community where people of different backgrounds and cultures can interact. The Centennial Hall serves in part to recognize the university's origins (http://www.hokudai.ac.jp/catalog/02-03/about/07_08/07_08_01_314-314.html; downloaded November 10th, 2003). The Foreign Students' House accommodates international students in a comfortable atmosphere to promote studying and mutual understanding and friendship among the house residents (http://www.hokudai.ac.jp/catalog/02-03/about/07_08/07_08_04_316-316.html; downloaded November 10th, 2003). A cafeteria for students, "Harunire" won a National Schools' Excellent Design Award in 1997 with full glass walls admitting natural light into the cafeteria. The indoors are designed to give warmth and softness with the harmony of natural and white lights. From the cafeteria students can enjoy campus nature throughout all the seasons (http://www.hokudai.ac.jp/catalog/02-03/about/07_08/07_08_10_319-319.html; downloaded November 10th, 2003). The Faculty House - Trillium - is designed to provide an informal atmosphere for the promotion of educational and research activities and staff welfare (http://www.hokudai.ac.jp/catalog/02-03/about/07_08/07_08_12_320-320.html; downloaded November 10th, 2003).
- **Kobe University.** This university states that its "Two campuses are located in harmonious nature, each on a hill & by a bayside.... Kobe has colorful nature of the four seasons, with a relatively mild climate year round. Situated in such an environ-

ment, Kobe University has an open-minded atmosphere where students and scholars freely and actively participate in academic and educational activities (<http://www.kobe-u.ac.jp/about/guideline/frame2.html>; downloaded November 10th, 2003).

- **Hiroshima University.** This university indicates that its campus is among the most beautiful and spacious in Japan with the implicit suggestion that this encourages the ongoing pursuit of knowledge and academic research activities. The location of the university in the city of Hiroshima is said to be symbolic of the university's desire to send a message of peace to the world. (http://www.hiroshima-u.ac.jp/category_view.php?category_child_id=1&category_id=8&template_id=14&lang=en; downloaded November 10th, 2003).
- **Kanazawa University.** This institution points to the rich natural surroundings of the city of Kanazawa and the cultural traditions of the local community which, they suggest, will help students in the cultivation of their individual personalities. The university also provides a virtual tour of the campus <http://www.ad.kanazawa-u.ac.jp/president/e/default.htm>; downloaded November 10th, 2003) and celebrates its history on a website (<http://www.kanazawa-u.ac.jp/history/>; downloaded November 10th, 2003).
- **Tokyo University of Science.** This university states that two of their three campuses are rurally located in rich harmonious nature, The sprawling Noda campus has very lively and natural surroundings with forested spaces, a lake, large sports fields, and various administrative offices (<http://www.sut.ac.jp/edocs/camp/nodaacc.html>;

<http://www.sut.ac.jp/edocs/camp/oshaacc.html>; downloaded November 10th, 2003) while the Oshamambe Campus in Hokkaido is spacious and located on the seaside in the beautiful countryside of Hokkaido.... The many innovatively designed campus buildings have won numerous architectural accolades (<http://www.sut.ac.jp/edocs/camp/oshaacc.html>; downloaded November 10th, 2003).

- **Tokyo Metropolitan University.** This institution refers to its huge natural campus located in a quiet suburban area of Tokyo with the university environment sharing attributes of the world's famous universities. "Once inside the campus, the simple, yet sophisticated European-style buildings and many trees provide a relaxing atmosphere for study and learning." The well preserved natural environment and superb facilities are a major source of pride for the university. The main library at Tokyo Metropolitan University is located in the very center of the campus with easy access for everyone. The library's motto, written on the side of the dome, is VERITAS VOS LIBERABIT, the truth shall make you free. Thus, the library is the center of knowledge and inspiration at TMU (http://www.metro-u.ac.jp/pdf_file/ug.pdf; downloaded November 10th, 2003).
- **Gifu University.** Being surrounded by rivers and natural spaces, Gifu University takes pride in its rich nature and uses this as a drawing card to attract students (http://apchem.gifu-u.ac.jp/~kinou3/test_homepage/index.html; downloaded November 10th, 2003).

In summary, it seems that, historically in Japan, emphasis was placed on the human

relationships that are likely to develop in a university context. There did not seem to be an explicit acknowledgement of the role that campus design, including the natural and built aspects of a university campus, might play in promoting these relationships which occur in both academic and extra-curricular (e.g., club) contexts. In other words, the idea of the learning experience being embedded in a physical environment – the university campus – and the role this physical environment might play in supporting or impeding the educational mission of the university does not seem to have been stated explicitly in the past.

Today the situation seems to be changing as revealed by the statements made by some of the universities cited above. As noted already, part of the reason for this increased emphasis on the campus environment may be arising from the necessity of presenting an attractive image to potential students. However, it may also be the case that what might have once been an implicit understanding is now becoming more explicit as educators and educational administrators recognize the importance of the campus environment to the learning experience they claim is available at their universities. In other words, it seems that there is an increasing interest in Japan and elsewhere in determining what makes a campus work effectively in support of the educational mandate of the institution.

What Makes a Campus Work?

Arguing that there is widespread global concurrence on what makes an effective campus environment, the Ohio State University in Columbus, Ohio, has published

guidelines on the campus design process in the belief that the goals of the institution cannot be accomplished effectively apart from a systematic design process that incorporates all elements of the university - physical (natural and built) and social (students, staff, faculty, visitors) - into the design equation. In their introduction to conceptual design principles, the following statement may be found:

Campus buildings contribute to the accomplishment of the University's academic mission in two important ways. First, they provide enclosed, comfortable spaces that serve activities ranging from generating steam to teaching philosophy - spaces that serve the practical, as well as the intellectual and emotional needs of students, faculty, staff, and visitors. Second, the University's buildings create a campus that is the setting for a unique academic community - a campus that also must serve practical, intellectual and emotional needs.

(http://www.fpd.ohio-state.edu/OFPD/assets/Plan_Design_Community/standards/concept1.pdf; downloaded November 16th, 2003)

The Ohio State University Guidelines for campus design relate to the following domains. The university must:

1. Establish a harmonious blend of unity and diversity. The university campus should create a sense of a unitary entity in the mind of the perceiver while, at the same time, providing a sense of the diversity which should be the hallmark of a university environment.

2. Provide an integrated network of campus spaces and pathways. The campus environment should be easily understood and navigable by its users.
3. Provide for change. The campus environment should be designed in a way that allows for changing circumstances and needs. This principle can apply to the campus at large or to individual buildings or facilities that may require a retrofit in the future due to technological advances, demographic changes, and so on and so forth.
4. Provide an accessible and safe campus that gives priority to the pedestrian. The campus should be designed in such a way that pedestrian traffic has the right of way. This means, in principle, that motorized forms of transportation, while necessary and appropriate, will not dominate or disturb the campus occupants who, for the most part, will find their way around the campus on foot or by bicycle.
5. Establish campus boundaries that serve the overlapping interests and needs of the university and the surrounding communities. As the university campus is situated in the wider community, and is likely to be funded, at least in part, by that wider community, the university should see itself as a community resource and reflect this understanding in a campus design which makes possible a reciprocal and viable interaction between the university and its surrounding communities.

Guidelines that support the process of learning include the requirements to:

1. Design buildings and campus places that celebrate learning. This is an aesthetic consideration and calls for landscape and building designs, both interior and exterior, that give rise to a feeling of excitement about learning.
2. Design buildings and campus places to encourage informal learning. Much of the learning that occurs on a university campus occurs outside the classroom or laboratory setting. This learning derives, to a significant degree, from the interpersonal relationships which form as a result of opportunities for people to gather together informally for relaxation, recreation, discussion and dialogue. To enable this sort of informal learning, the university needs to provide the physical spaces for people to gather together in comfortable and stimulating circumstances.
3. Design building and campus places that support individual study and meditation. Everyone needs time for individual study and reflection. The university should provide the kind of spaces and places that allow individuals to enjoy periods of solitude for activities that need to be conducted on a solitary basis.

Guidelines that enhance the sense of heritage and tradition include the requirements to:

1. Reflect the heritage of the academic disciplines as well as the persons and the events central to the academic mission of the university. Each institution and each discipline has an origin and a history. The present state of affairs did not arise in a vacuum. Celebration of the historical origins of the disciplines through appropri-

ate displays distributed throughout the campus gives the individual a sense of the debt owed to those who came before and a sense of being a part of an important enterprise in human affairs.

2. Provide historic continuity. The university should provide evidence of the links between past, present and future in ways that reinforce the impression that we all depend, as individuals and institutions, on the vision of those who came before us. We are the current bearers of the vision which we, in turn, pass forward to future generations.

Campus planning and design principles such as those in effect at the Ohio State University are no doubt used to some degree by all universities and colleges as they plan and manage their campus environments. However, the Ohio State regulations seem to be particularly detailed and demonstrate a clear commitment to sustaining a campus environment that will maximize the educational experiences of those who attend, or who work at, or who visit the university. The application of design principles and procedures such as those outlined above acknowledges explicitly the welfare of the user as the bottom line in campus planning and design. This amounts to an acknowledgement, implicitly or explicitly, of the psychological processes and phenomena which are either enabled or inhibited by a particular environmental design. By incorporating the psychological dimension into the design process, the probability is enhanced that a good match will be achieved between the learning tasks and opportunities at hand and the physical contexts on the campus in which these tasks

will be undertaken.

Case Study: A Preliminary Survey of Student Responses to the International Christian University Campus Environment

The International Christian University (ICU) in Mitaka, Tokyo, Japan accepted its first students in 1953. ICU was a pioneering institution in Japan in many ways. Apart from a liberal arts educational focus underpinned by basic principles and values of Christianity and internationalism, ICU also brought a North American-style campus environment to Japan. The ICU campus is considered to be one of the most attractive in the country, at least in terms of its more natural aspects, and in 2004 it still offers a pleasant and calming oasis in the midst of the surrounding urban sprawl.

Figure 1 is a representation of the ICU campus as it was several years ago. Since then several new buildings have appeared, including a new student center, an extension to the library, a new dormitory, and an Alumni Center. These facilities are located for the most part in the central area of the campus and the more peripheral areas remain essentially unchanged from the time Figure 1 was prepared.

It is apparent at first glance that the ICU campus has an abundance of regions and elements that provide a pleasant natural context in which the buildings are set. A loop road circles the inner campus and motorized traffic within the inner portions of the campus is prohibited except for local delivery purposes. Parking areas for motor vehicles are situated away from the center of the campus

and movement within the inner region is primarily on foot or by bicycle. Bicycle parking lots within the inner campus enable commuters to park relatively near their destinations.

Participants

A total of 57 ICU students served in this study. All were members of a General Education course offered during the 2000-2001 and 2002-2003 academic years, respectively. A section of this course dealt with environmental assessment and architectural design. All participants had been exposed to the ICU campus for a period of at least six months prior to the collection of data.

Apparatus and Survey Materials

The survey used in this study was derived from the various criteria specified by the Ohio State University in regard to their specifications for campus planning and facility design and retrofitting. The original survey consisted of 35 items. However, 13 of the original items were dropped following a principal components analysis so the results reported below are based on the remaining 22 items. Participants used a 6-point scale to indicate the extent of their agreement or disagreement with each statement.

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Somewhat Disagree
- 4 – Somewhat Agree
- 5 – Agree
- 6 – Strongly Agree

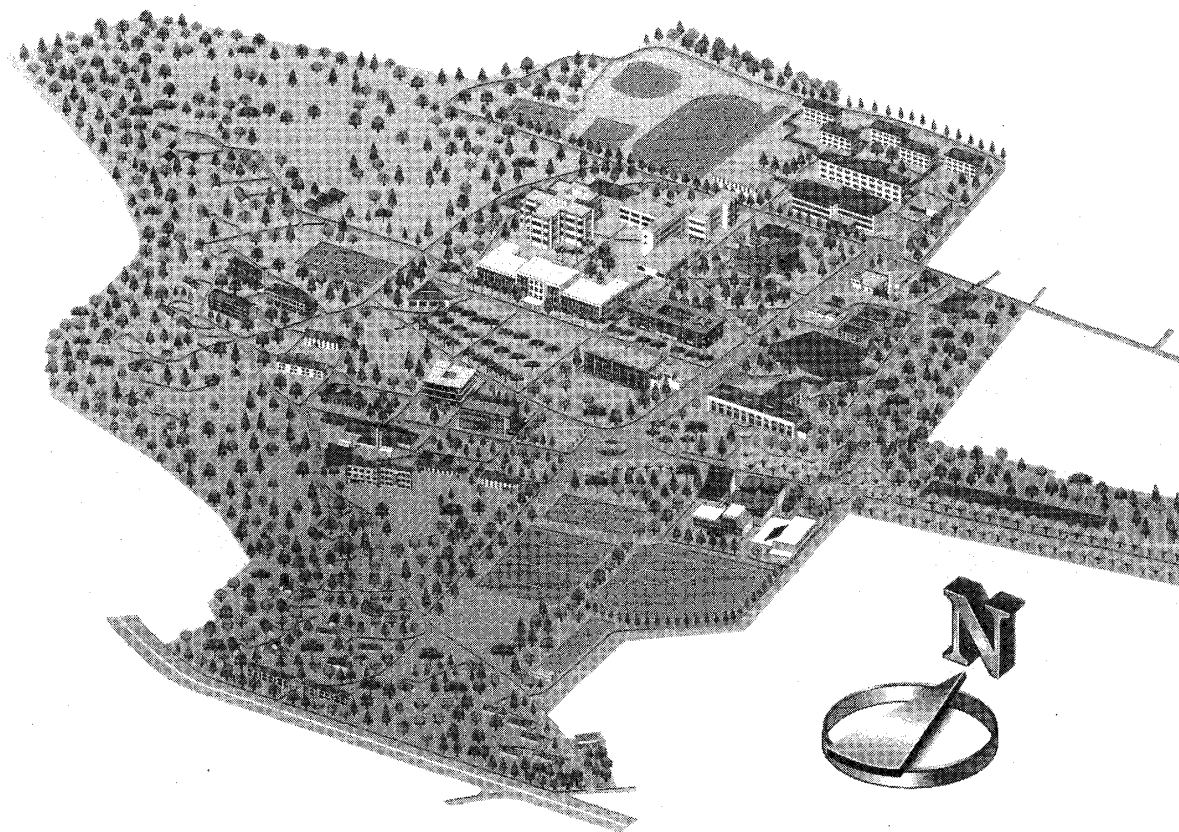


Figure 1. Representation of the International Christian University campus located in Mitaka, Tokyo, Japan (Image courtesy of the ICU Public Relations Center).

Participants were also able to add individual comments following each item if they wished. The language in which the survey was distributed was English.

Procedure

The survey was circulated to members of the General Education class and participants were asked to respond to each item using the 6-point rating scale on the basis of their own experience and understanding of the ICU campus environment. Following the completion of the survey, results were collated for purposes of the analyses reported below.

Results and Discussion

Basic descriptive statistics were calculated for the 22 survey items. Mean values for each of the items are shown in graphic form in

Figure 2. The individual survey items in Figure 2 were arranged in accordance with their loadings under a set of six factors derived from the principal components analysis. The names assigned to these factors are shown in Figure 2 and Table 1 shows the six factors and abbreviated descriptions of the survey items loaded under each factor.

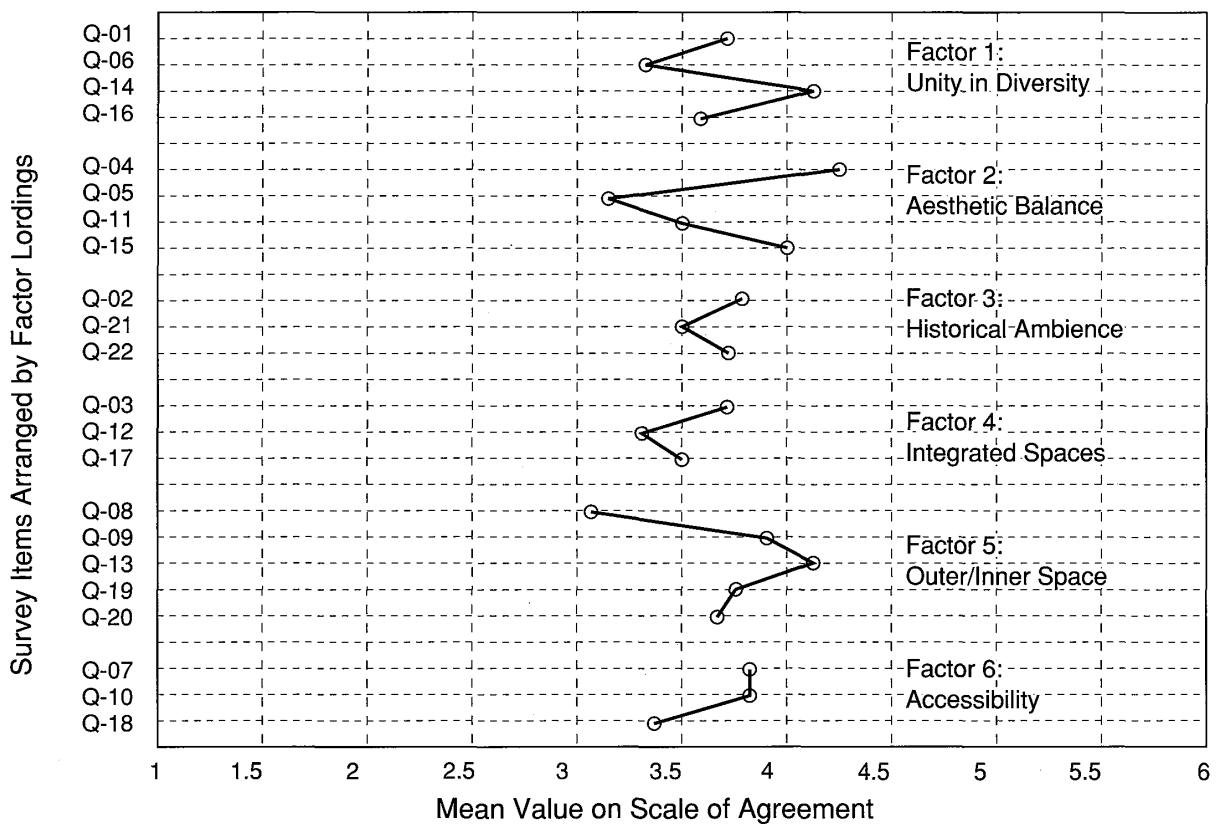


Figure 2. A profile of mean values for the 22 survey items arranged in order of the factors under which they loaded in a principal components analysis.

Table 1 Results of the Principal Components Analysis Producing Six Factors Based on 22 Original Items

Original Survey Items	Factor 1 Unity in Diversity	Factor 2 Aesthetic Balance	Factor 3 Historical Ambience	Factor 4 Integrated Spaces	Factor 5 Outer/Inner Space	Factor 6 Accessibility
Q-01 Harmonious balance of unity and diversity	.782					
Q-06 Flexible, accommodating change	.522					
Q-14 Each learning space is unique	.527					
Q-16 Interdisciplinary chance meetings and ad hoc discussions enabled	.782					
Q-04 Buildings complement green spaces		.601				
Q-05 Buildings complement one another architecturally and aesthetically		.714				
Q-11 Bicycle parking areas conveniently and aesthetically located		.754				
Q-15 Spaces encourage informal learning		.431				
Q-02 Components unique but integrated with one another			.554			
Q-21 Heritage of academic disciplines apparent			.802			
Q-22 Obvious sense of historical continuity			.762			
Q-03 Campus provides integrated network of spaces				.811		
Q-12 Campus integrated with surrounding community				.615		
Q-17 Facilities encourage participation in ongoing learning activities				.457		
Q-08 Functional parking for motorized vehicles					.605	
Q-09 Aesthetic parking for motorized vehicles					.812	
Q-13 Buildings and places celebrate learning					.642	
Q-19 Engagement possible in intellectual life beyond classrooms/laboratories					.496	
Q-20 Support for individual study and meditation					.468	
Q-07 Priority given to pedestrian traffic						.435
Q-10 Bicycle parking functionally located						.846
Q-18 Recreational facilities easily accessible						.730

Factor 1 seemed to represent the quality of “Unity in Diversity” signifying the extent to which the campus is perceived as consisting of diverse elements that nevertheless exhibit a cohesive linkage or unity.

Factor 2 was labeled “Aesthetic Balance” and refers to the extent to which various elements comprising the campus environment complement one another in an aesthetic sense.

Factor 3 was labeled “Historical Ambience” and refers to the extent to which the campus environment offers tangible evidence of the university’s historical origins.

Factor 4, labeled “Integrated Spaces” refers to the extent to which the various spaces that comprise the campus give a sense of having a functional and aesthetic integration.

Factor 5 was labeled “Outer/Inner Space” and refers to the extent to which the campus environment provides an appropriate blend of internal and external areas in a physical sense and also the opportunity for people to cultivate the external sphere of interpersonal relationships and the internal sphere of individual learning and contemplative activity.

Finally, Factor 6, labeled “Accessibility”, refers to the ease with which people can gain access to the various campus facilities and services.

The present results must be taken as preliminary and tentative. However, in contrast to the rather strong appeal of the more natural aspects of the ICU campus reported by Rackham (2000), the results of the present study suggest, as shown in Figure 2, that respondents, on average, found themselves midway on the scale of agreement with the 22 items comprising the survey. This suggests that while the more natural aspects of the

campus environment receive high praise, the integration of the built components of the campus among themselves is less than optimal. This also seems to be the case for the sense of integration of the more natural and the built elements of the campus environment.

Overall, it seems that adjustments to the campus environment could improve the sense of coherence that helps to give the university the aura of a unique and supportive learning environment resonant with the university’s educational mandate. In short, a sense of unity in diversity (Factor 1) could be enhanced on the ICU campus. This also seems to be true in regard to the aesthetic balance among the various built and natural elements comprising the campus environment (Factor 2 - Aesthetic Balance).

In regard to Factor 3 (Historical Ambience), The Ohio State University Guidelines point to the importance of conveying a sense of the historical continuity of the institution. Again, in the present study, ICU student respondents were less than enthusiastic about the extent to which the sense of the historical origins of the university are manifest in the general campus environment. In short, it seems that more might be done to give students a stronger sense of the special circumstances underlying the foundation of the university in the early 1950s and the special role the university has played in the context of higher education in Japan. ICU was a pioneering institution and one that developed as a response to the perceived inadequacies of the higher education system that prevailed prior to and during World War II. Greater awareness of the unique history of the institution and the eminent figures who played such a prominent

role in its founding and early development may help contemporary students and faculty members to sustain the spirit of innovation and adventure that made ICU such a special place for its earlier graduates.

In regard to Factors 4 (Integrated Spaces), 5 (Outer/Inner Space) and 6 (Accessibility), Figure 2 again makes it clear that some improvements are in order, at least from the student perspective. A sense that spaces are integrated with one another in accordance with some higher purpose not only fosters the individual study experience but also relates to the kind of coherence that produces an overall sense of a special learning environment. It should be noted that accessibility in this case refers to accessibility by “normally abled” individuals to various campus facilities and services. An important issue not addressed in the present study was accessibility issues for those individuals experiencing various types of “handicap” but who are able to benefit from a university experience once the appropriate adjustments to the environment are implemented. To its credit, ICU has embarked in recent years on a programme of making the campus and its facilities more easily accessible to those who are visually impaired and those with mobility challenges of one sort or another.

General Discussion and Conclusions

This paper began with the assertion that the campus environment, in both its global and individual aspects, is critical to the success of an institution of higher learning. The campus environment sets the context for a successful learning experience and, if proper design principles are implemented, especially those incorporating a psychological perspective in

addition to the traditional perspectives afforded by landscape designers and architects, the likelihood of an institution fulfilling its educational mandate successfully is considerably enhanced. The article surveyed a number of overseas universities in regard to the extent to which they acknowledged the campus environment as a critical element in the overall mission of the institution. The results of this survey suggest that the importance of the campus environment is clearly recognized as critical to the identity of a given institution and the extent to which its vision can be matched by its accomplishments.

The results of a survey of selected institutions in Japan suggested that relatively less emphasis seems to have been placed in the past on the campus environment as a key element enabling an institution to develop its unique identity and to fulfill its stated mission to society. This now seems to be changing as the pool of students available for university recruitment is shrinking in Japan. Whether an increased awareness of the campus environment as a critical element of the university learning environment is being stressed for this reason as a recruitment device or whether there is a change in attitude regarding the role of the university campus in and of itself as the foundation of the learning environment is unclear at this time.

The possibility of quantifying the design process in terms of seeking users' responses to a campus learning environment is suggested in this preliminary study of student responses to the ICU campus environment. Using a survey developed from basic principles of design and planning developed by the Ohio State University, these preliminary results suggest that improvements can be made in

creating the kind of ICU learning environment that celebrates unity in diversity, a sense of aesthetic balance among the various elements comprising the campus environment, encouraging awareness of the historical origins and continuity of the university, the integration of spaces providing a sense of a coherent learning environment, an appropriate balance of inner and outer spaces, both physical and psychological, and easy accessibility to the facilities and services available on the university campus.

The present study may be construed as a variation on the theme of Post-Occupancy Evaluation (POE) but applied, in this case, to the campus environment as a whole rather than to individual buildings or facilities. The POE approach emphasizes the experience of the people using a facility (Zimring, 2001; Preiser, 1994; Preiser et al., 1988). Ideally, such considerations should be introduced at the planning stage to minimize discrepancies between the designer's vision and the experience of the those actually using the facility. However, a perfect match between intent and experience is unlikely to occur and the POE procedure enables the designer to obtain data from those who make use of the facility on a regular basis. Based on this feedback, adjustments can be made as possible and appropriate to the existing facility to optimize the match between the functional and aesthetic needs of the users and the environmental characteristics essential to meeting such needs.

At the level of a university campus environment as a whole, it seems that the same basic principles should apply. To create an optimal learning environment, a clear understanding of the factors which constitute such an envi-

ronment is necessary. It is proposed that future studies be directed to clarifying further what makes an optimal campus environment, especially in Japan, and refining a survey instrument based to a significant extent on psychological principles.

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