Art and Politics: A Study on Design for Scenario-based Information Guide Map

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Abstract

It could be said that the epitome of well-designed information is an easily comprehensible and comprehensive map. If a map functions well, its practicality is without question. It stands as a good example of the efficiency of the medium and the readiness of its user to collaborate in the language of communication it demands.

Mapping the area occupied The Kwanak campus of Seoul National University(SNU) is an equally imposing proposition and traditionally the maps produced have long been regarded as inadequate, containing insufficient and inaccurate information, which often misleads the user. My first task was to take these existing maps and thoroughly examine their usefulness, paying particular regard to the possibility of integrating the online digital technology within the University's web site, in order to maximize their value. In collaboration with my class of undergraduate students, I decided to take as sample cases, three different category of user, so as to test, both the status quo and any subsequent solutions I may devise, in the wake of my enquiry. The demands on a map made by staff, students, and visitors. These examples were to form my user groups for the project and provide the necessary scenarios for the investigation.

The advantage of incorporating an online interpretation is that it has the facility of hypertext, infinitive space and the efficient search characteristics, being able to enlarge detail on demand, zooming in and out at will. These are luxuries that the offline maps cannot enjoy, simply limited by their two-dimensional state. Would it be possible to integrate the virtual language of the online - the diagrams, the icons and introductory text, with the paper version and all its drawbacks? Can one expect this 'hybrid' to be as convenient as a well-conceived offline version? Can we produce maps that are customized to the needs of the user? Will we ever reach a situation where a paper map is redundant?

The basis of this inquiry is therefore to explore the potential of an 'eMap' for the Kwanak campus, but an eMap with a difference. It is to be a true aid by which to navigate the location, be interactive enough to provide personal interpretations and have the capacity for translation as a printed artefact. This is a quest to discover a solution to a very complex graphic communication problem that some might consider insolvable. The aim of this study was to produce a customized digital information map for each scenario under the Traffic/Service/Administration headings, designed to demonstrate how each could locate a particular place - an information guide map.

To accomplish this, I intend to present a new navigation interface and enlightened methods of map-making.

Key words: Roadmap, Navigation, Information Design, User Scenario, Integration

1. Introduction

1.1 Backgrounds

The analog and digital systems are now being fused for the convenience of the user. The methods of expression of the various devices, dependent on digitized numbers, are being enhanced through analog visualization. A good

example of this is today's wristwatch. 'Digital' within but designed to feature an 'analog' outer cover. The steady saturation of similar compact, portable navigation devices into the market, presents exciting new possibilities for the designer to overcome the traditional spatial limitations of the roadmap.

The distinct advantage of a digital system lays in its interactive characteristics. The ability to seek out and customize information is a feature that the offline planar maps simply cannot present. The eventual purpose of this study is to facilitate the making of specific maps by fully integrating offline and online designed applications. It therefore means that the basic prototype - an integrated guide map, is produced by employing the optimum interface characteristics of both interpretations.

Romedi Pasini, an architect, argues that today's information designers have become the torchbearers in unforthcoming our respective environments. Furthermore, Richard Saul Wurman, himself an information designer, and a pioneer in 'unraveling the complex', stresses the relationship between the theory of information design and the idea of architecture. It was he who unified the two fields by coining the phrase 'information architecture' [1].

The sheer size and complexity of the Kwanak campus of SNU, situated to the South of city of Seoul presents an awesome task to any mapmaker. Superfluous information always represents the greatest hurdle to overcome. The designer must remain faithful to the facts, analyzing and re-analyzing with exactitude, while making convenience and practicality paramount. The combining of offline and online interpretations would thoroughly test any proposal.

Let's take, for example, a Global Positioning System or a car navigation system [2]. These are both proof that today's digital world is not simply the manifestation of advanced technology, it also the challenges mankind's frame work of thinking. The same process that stores and reveals information can change text to hypertext and physical space to digital space. These systems not only arrange simple textual information but present standards that facilitate the production and inclusion of hypertext. They also release the potential for new interpretations that can expand a simple cartographic depiction into a fully comprehensive guide.

1.2 Purposes and Necessity of Study

The vast spread of the Campus with its complexity of scattered buildings and connecting roads and pathways, running in all directions, becomes a maze for any visitor. Even armed with a map, it is not easy to sift through the mass of information. In order to find an easy route, specific guidance is needed by both new and occasional visitors and the residents.

When attending a specific event, such as a special lecture, conference or exhibition, a visitor should expect to be presented with only the information he/she needs. This poses a fairly easy problem to overcome. However, how do we serve the remaining residential population occupying a site of nearly 1 million pyung (1pyung=1.8m*1.8m); a living community, which can number more than 50,000 per day? The existing maps, brimming with confusing and inaccurate information, are no solution to the general needs of the individual resident or the specific needs of the visitor. Maps that do not have sufficient information, with buildings and street names not properly marked, and without a regular update, simply represent a waste of money and effort. It is not difficult to come across the odd visitor who has been wandering the campus for twenty minutes in a taxi, desperately trying to locate a particular building.

The intention of this case study is to make a guide map for the campus, which functions both 'online' and 'offline'. These are to be produced by employing and developing recognized methods of designing cartographic information for both mediums. Good

information is that which is required, presented in an aesthetically pleasing form, economically and obtainable at reasonable cost to the user. This phrase was to govern our project.

The map has been produced by applying three implicit ideas: (1) by using live 'storytelling' created by the different scenarios. (2) by employing the search, reduction and enlargement facilities offered by the Internet. (3) based on user / target orientation.

The result is the evolution of a basic prototype that presents various possibilities for evaluation. However, this does represent an in-hand, on-screen interpretation of how the final product might look.

1.3 Methods and Processes of Study

If 'pathfinding' in architecture represents ways that a building's utility and behavioral functions are assessed and appraised, then 'information design', by also unfathoming a buildings identity and use, can claim to have an equally valid role. Let's apply a form of pathfinding of our own. Why not integrate the offline planar maps of campus and online maps of the Internet home page into a single map? The sitemap can be an excellent guide for a Web surfer who wants particular information in websites. In the same way an architect elects to conceptualize the 'use' as well as the structure of a building, this study chose to visualize the notion of 'route' as well as 'site'.

It was decided that what was required was an on/offline roadmap, equipped with properties of integration, logically structured by analyzing the merits and demerits of both applications. This was to closely examine the differences in the respective roadmaps, sitemaps and Meta diagrams. The processes are as follows:

First, the study classified the different types of existing maps that were being used, comparing and analyzing each under identifiable categories, eg. methods of searching and recording etc. Secondly, the study compared and analyzed the merits and demerits of the offline roadmap, the online roadmap, and the online sitemap for the subject of study. This was undertaken using the information on the SNU website (http://www.snu.ac.kr). Thirdly, the study attempted to formalize a set of standards to be incorporated in any future mapmaking for the campus. No route map was to be included except for the purpose of pathfinding. Also, all superfluous information was to be excluded and topography included only when necessary. The actual roadmap, the key to understanding the basic layout of the site must be intuitively recognized at a glance by anyone who picks it up. The icon pictograms, which are to have consistent colors and shape, must be distinguishable and easily understood. Fourthly, the study presented the sample scenarios for different targets and purposes. The demands on a map made by a member of the faculty, who has been in residence for ten years, are very different from those of a freshman of several months and the new visitor who spends twenty minutes, roaming the site, in a taxi. These were categorized by Service, Traffic and Administration. The respective content of each was then analyzed and ordered. Finally, guide maps were conceived, visualized and produced for both print and digital media.

Table.1 Processes

Researching mapping techniques
Scrutinizing for defects and possible improvement of the existing maps.
Checking the accuracy and positioning of actual locations.
Collecting information for the purpose of Traffic /Service/Administration.
Analyzing and writing scenarios for each situation.
Designing and programming of variable solutions such as interface, navigation, and interaction.
Visualizing a new graphic interface.
Evaluating and debugging for the online maps.

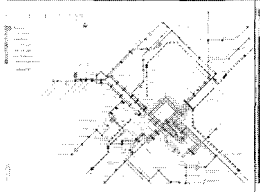
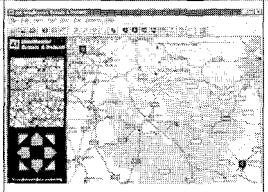
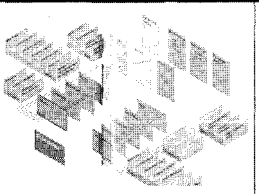
2. Examination and Analyzing

One encounters many 'pros' and 'cons' when designing online interpretations, particularly when trying to control interactive searching, reducing and enlarging. This is not so with an offline solution, where the 'bird's eye view' enables one to scan an entire area at a glance. The different types of map demand different comparison and evaluation, classified by their implementation, whether it be digital or print-based technology. One situation is virtual, governed by thought and imagination; the other is actual and based on a true physical state. Paul Kahn and Krzysztof Lenk define that an information map [3] is a special form of visual communication, coded by geometry and culture to arouse visual imagination.

2.1 The comparison and analysis of the characteristics of different kinds of map

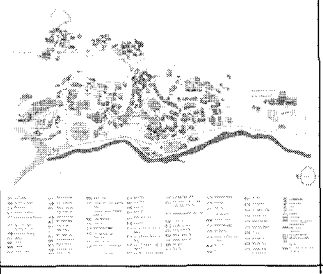
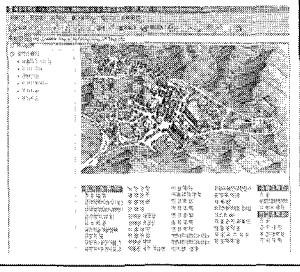
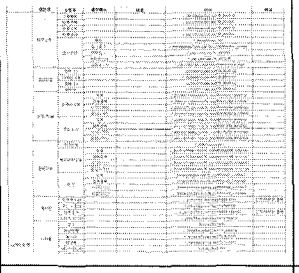
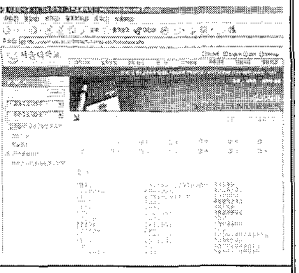
In order to investigate and analyze the various maps, the benchmarking systems of subway maps and theme parks have been used present the offline environmental information (a kind of traffic information guide). For the online maps, other cartographic interpretations used on the Web have been closely examined for suitability. Other maps [5], focusing on information classified logically and also identified in the home page have been collected and presented. The table shown below is a guide to compare and analyze the respective characteristics of each kind of map.

Table.2 The comparison and analysis of the characteristics for the different kinds of map

Types	Offline roadmap	Online roadmap	Meta diagram	Online sitemap
				
Search Method	Find a building number or searching for the building or place name	Enlarge and minimize Selection	Relativity	Keyword searching Click & Go
Coding Method	Diagram and map	Location in the map	Paper media, diagram, Not shown in the final	Home page and Site
Selection	All information Static	Select information Dynamic	Static	All / Selected information Static / Dynamic
Contents	Building name, Road, Location	Building name, Road, Location	Relativity, Concepts, Hierarchy	Home page address (URL), Site name
Access Method	Planar media	Web site, Kiosk	Hidden	Web site
Media	Text, Image	Moving Image, sound	Image	Text, Image
Interaction	Not available	Highlight, Blink	Not available	Link
Updates	Reprint	Online update	Reprint, Online	Edit link

2.2 Analyzing of the state and situation for each map

The following reference material relating to our project with SNU was collected and analyzed. After checking for authenticity, the information deemed to be necessary for the different classes of map was applied.

	Offline roadmap	Online roadmap	Meta diagram	Online sitemap
Present Maps				
Present Situation	Maps not up-dated and difficult to obtain.	Location of buildings and features difficult to identify.	Comprehensive information remains inaccessible.	Specific information difficult to access
Approach	-Investigate alternative means of presentation. -Consider different form and format. -Examine methods of production / folding. -Total site overview imperative.	Investigate better methods of enlargement, reduction and scanning to suit interactive system	-Develop better structure to accommodate and access contents.	-Streamline the search capability. -Incorporate Hyper functions to include specific locations and website access.

3. Setting a standard for the study

The designer's primary concern, when transmitting information, is the problem of recognition and comprehension by the recipient. The designer has to ensure that aesthetics - for the screen can become a seductive medium - do not subvert the purpose of the communication and its clarity. The elements one considers when viewing the whole aspect of creating an information guide map ie. the standards of information design, instructional design, and diagram design, have equal relevance and importance. The key aim is to get the best product.

3.1 Considering the key elements of Information Designy

Robert Jacobson, in his book on the subject, claims that 'Information Design is a means of communication and the science of a technology for preparing information efficiently, and with maximum effectiveness'. The primary objectives are as follows: First, it is to develop an easily understandable document that effectively shows an action and is able to be found quickly and in an exact form. Secondly, to use the interactivity and the interface tools to design connections in an interesting and memorable way. Thirdly, to ensure it assists the user to locate targets easily and comfortably, maximizing the facility of 3D space.

The major argument regarding contemporary information design concerns its methodology. How can such vast amounts of information be supplied accurately and comprehensibly, at a glance? Can standards be established for interface design? Furthermore, can these standards be constantly applied to ensure the evolution of a suitable product? The study subsequently revealed that information disclosed by research could be quantatively evaluated to form the basis of a practical working solution.

4. Table.4 Information Design considerations

Element	Description
Accessibility	Is it easy to obtain and easy to use?
Clarity	Is the required information accurately transferred at a glance?
Readability	Can the information be read quickly, easy to find, and transferable?
Memorability	Are the contents distinctive and remembered at a glance?
Speed	How fast will it be transferred?
Aesthetics	Is it well designed?
Consistency	Is the graphic language identifiable and applied throughout?
Reliability	Is it current and how realistic is the data?

3.2 The visual elements of diagram design

Designers can express the same message in different ways. Therefore standards for mutual understanding between designer and recipient are required. It was decided that the same considerations required for the design of the diagrams were to apply to the maps, the visual elements being color, position, direction, luminosity, size, and so forth.

The major factors that govern pathfinding are cultural. We learn to recognize a common visual language by both group and individual experience. Therefore proper and consistent visual information must be used. The more appropriate the visual information used, the more successful the pathfinding. When the information is inadequate, the more likely the user will employ trial and error. The methods used for the recognition and perception of displayed would improve as the digital implementation becomes efficiently interactive. However, it was anticipated that different experiences were bound to surface when designing for the offline printed versions. The eye can easily recognize the difference between a door, an office, and the stairs in an actual environment. When we search for the restroom, we locate the right door by the sign mounted upon it. We do not need to actually open the door. For the same reason, the use of well-designed, appropriate icons and symbols will enhance any map by streamlining its use and ensuring its legibility.

Table.5 Diagram design considerations

Element	Description
Colour	Distinguishing elements by color selection.
Position	Using coordinates to set positions.
Shape	Testing shape suitability.
Direction	Establishing correct orientation.
Value	Adjusting color values to suit.
Font, Typeface	Selecting fonts suitable to purpose.
Size	Gauging correct size for maps / fonts.
Table, Chart	Gauging tabulation and font weights.
Dimensions	Assessing depth, height, width, and thickness.
Annotation	Width of leader line, weight of dot, type of arrowhead, size of type.

3.3 The elements of instructional design

The paramount objective of good instructional design is also an accurate communication of the right information, governed by a profound understanding of sequence. Any secondary information, which may well be written in caption form or as a footnote, must be accessible and obvious to the user, prior to the instruction being transmitted. The main elements of instructional design [6] are classified as such: warnings, (general and specific) identification, measurement, composition, location and orientation. It was recognized that the communication elements of instructional design could be economically used to expand the design criteria employed in the designing of any guidebook, newspaper, handbook and manual that the project might demand. The following table was devised, to establish a new set of guidelines

that offered a more relevant platform for creative thinking.

Table.6 Instructional design considerations

Element	Description
Warnings	Identifying elements warranting emotional attention such as warnings, precautions etc.
Identification	Identifying objects by illustrating pointing or naming.
Measurements	Scaling for the correct measurement of size /distance.
Composition	Integrating complex elements and features.
Location & Orientation	Setting correct location and orientatio of buildings and features.
Sequence	Establishing a correct sequence for access.
Movements	Representing movement and flow.
Connections	Establishing devices to show how features are joined.
Actions	Expressing particular behavior.
Cause & Effect	Presenting reasons and results.

4. The case study

The object of applying information design criteria to pathfinding is not to simple addressing the aesthetic qualities of a sign but to help people to reach targets efficiently. An index, as to the quality and success of any design is not merely found embedded in a final product, but in the action and satisfaction of the users [7].

The targeted user groups, a cross section of campus occupants, have been classified under the headings staff, students, and visitors. Naturally they will all have their own specific needs. Although residents might occasionally use a map, they will generally have a rough idea as to how to get about - knowledge accumulated by experience, landmarking etc. On the other hand, visitors will be faced with a constant barrage of decisions as they pick their way through to a particular goal.

When one compares the pathfinding requirements for a website to that needed for an 'actual' environment we find the procedure to be the same. We establish a fact by using the naked eye to identify consistency and combine it with experience to make a hypothesis.

In terms of problem solving, the conceptualized pathfinding is broken down into five major procedures as follows: (1) Decide on a final destination (2) Ascertain which routes, pathways or buildings lead to the target place), (3) Execute the planned route. (4) Repeat the process, checking each step. (5) Make any amendment deemed necessary [8].

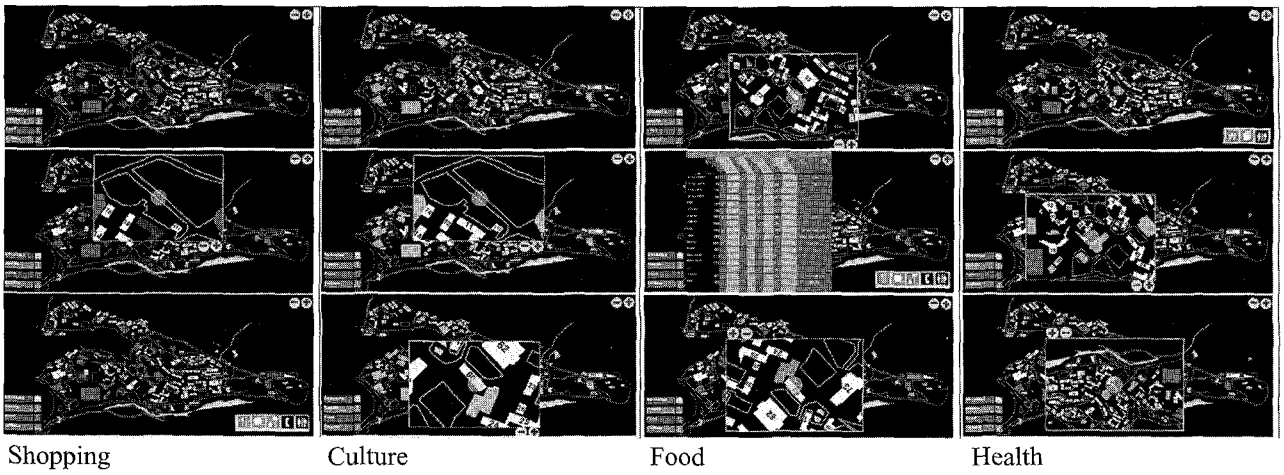
Having excluded movement categorized under 'general curricular activity' (lectures, classes etc.) which in fact constitutes most of the transient population on the campus, that remaining has been placed under three categories of demand: service information, traffic information, and administration information. Anyone requiring this knowledge needs to undertake a given process, the defining of a message, and the codifying, organizing, re-organizing, and analysis of it. Their action is based on information obtained by process of recognition, demanding attentiveness, perceptibility and memory. In order to create the scenario, the 3X3 matrix has been used, as described in the table shown below. As a result of the study, and the collaboration of my undergraduate students, who acted as the sample scenario groups; a prototype guide map evolved, customized under the appropriate headings. This was produced by reconstructing actual situations for each case and monitoring the respective sequences that arose. In addition, we were able to address problems relating to the offline roadmap. Using these live scenario groups, we could now accurately locate and name the buildings and visualize any information destined for print.

Table.7 Scenarios for each purpose

	Scenarios	Students	Staff	Visitors
Service Info	Food	Student's restaurant, store	Staff restaurant	Staff restaurant, restaurant
	Health	Sporting activities, Gym classes	Sports Centre	Watching Sports Games
	Culture	Library	Library	Cultural Hall, Museum
	Shopping	Bookstore, store	Bookstore, store	Souvenir shopping
Traffic Info	Walking| Subway	Walking in compound	Walking in compound	Approaching of mountain climber
	Bus	Approaching the Main entrance, back gate, or the first final stop	Village shuttle bus in compound	Difficult to use a shuttle bus
	Taxi |Private Car		Using the private car for attending and leaving the office	Mainly uses a taxi, bus
Administration Info	School affairs	Application for the class	Professor's class management	Certification issues
	Educational affairs	Record inquiry	Prosperity of staffs, evaluation of works	Information of the alumni association
	General affairs	Application for the school affairs and inquiry	Staff's apartment	Development fund

4.1 The case scenario for service-related information

A map was produced for the specific centres of interaction - Shopping (bookshops, clothing stores, etc.), Culture (exhibition halls, event venues etc.), Food (restaurants, stores, coffee shops etc.), and Health (sports grounds, sports halls, gymnasiums etc.). An important point here is that these locations demand additional written and coded explanations. For example, if one selects a restaurant, ideally, food-related information should accompany the identification of the site, such as prices, range of foods, times of opening, type of service etc. This was accomplished by the judicious use of icons and annotation, designed and written accordingly. Furthermore, by using the online facilities of enlargement and reduction it was possible to use 'dynamic windows' to blow up and demystify complicated zones and places. It was also possible to employ on-screen 'blinking' to highlight the relevant icons and captions.

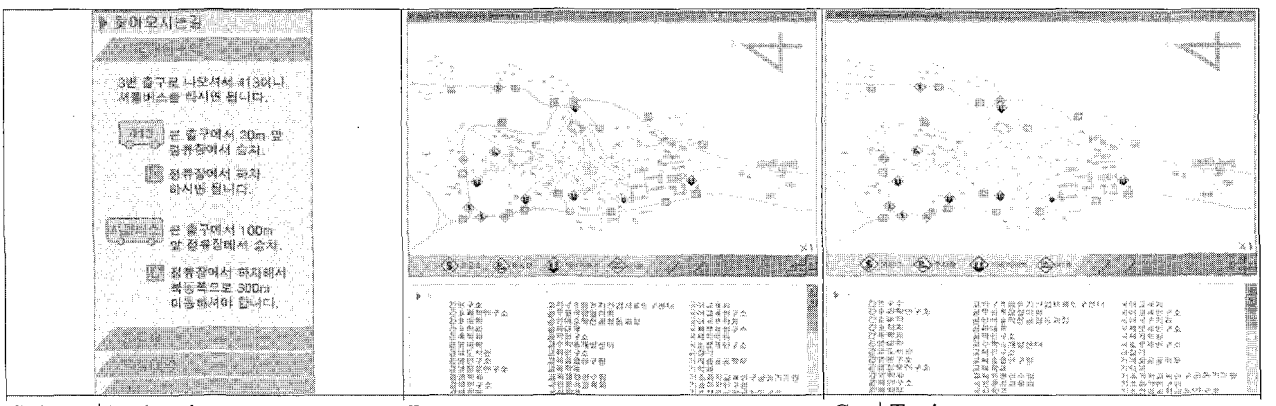


Shopping Culture Food Health

figure 1. Prototype for service-related information

4.2 The case scenario for traffic-related information

Another scenario has been created to classify different methods of transportation. The categories decided upon were: (1) Buses (2) Private Cars / Taxis (3) Subway / Pedestrians. Here the prototype employs, yet again, the online capabilities of its sitemap's search engine, to speedily highlight required knowledge. Traffic-related information e.g. the location of parking places, bus stops, taxi ranks, tollgates etc. are all readily available at the touch of the keyboard. Additional information, such as bus route numbers, lanes, and routes can also be supplied, on demand, by a simple punched instruction. In the case of the offline maps, it was decided to feature key routes and pathways to and from specific connection sites e.g. subway stations, taxi ranks, as well as other critical information such as bus stops and timetables.

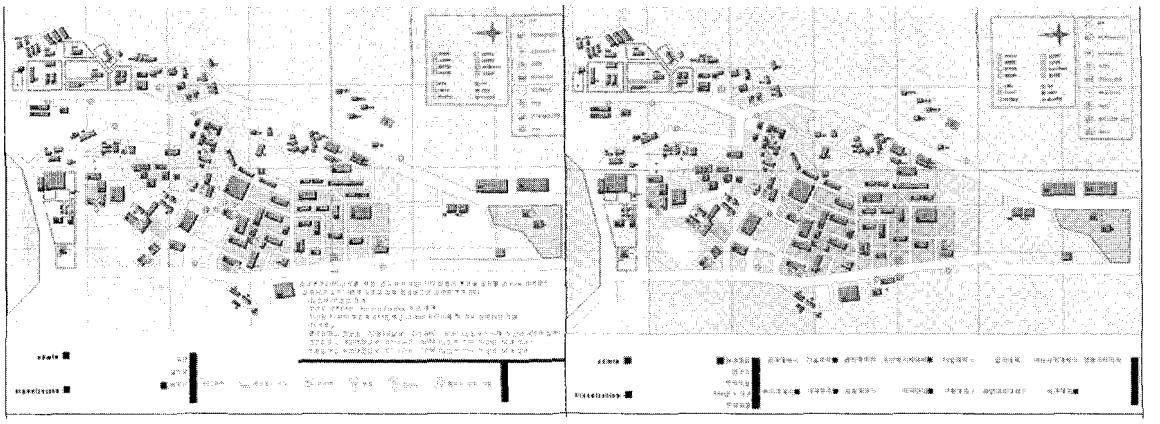


Subway| Pedestrian Bus Car | Taxi

Figure 2. Prototype for traffic-related information

4.3 The case scenario for administrative-related information

The reference material has been classified under two categories - information relating to the University's organization and that relating to its administration. A customized map was then produced for both. The first category identifies Colleges, Laboratories, Subsidiary Facilities, Corporation Offices, Other Offices and School Annexes. The latter uses different headings, e.g. The Administration of School Affairs, Certification Issues, Banking and Postal Services, Dormitories, and Computer Facilities. The administration map has been produced so that information, directed to a particular purpose, is readily available to students, staff and visitors. The functions of the different buildings are easily recognizable by a range of colors and related icons.



Administration (Student, Staff, Visitor) Organization (School, Research Center, Facilities..)

Figure 3. Prototype for administrative-related information

5. Conclusions

Visitors generally come to the campus with a particular purpose. Therefore, it is more effective to supply campus maps classified by the demands of the individual. Campus users want functional maps that take into consideration practical human factors and logistic needs in addition to information tailored to that particular demand. In design terms, the potential of the online map, harnessing all the advantages of digital technology, is enormous and possibly without limit. More sophisticated products are bound to evolve, enabling a very efficient information language to develop, a proposition made even more attractive if implementation were enforced across the information networks of other sites.

The text and icons, when used together, should be used preferentially depending on relevance. It is the consensus that maps that are produced relating to a specific scenario i.e. conceived through dialogue with the user and customized accordingly, become the most efficient products, targeted to purpose.

This study has entailed a systematic presentation of design solutions, intended to integrate both the online and offline interpretations, analysing the respective colour systems, icons and signage. In the course of further study, I shall first set out to unify the three types of maps selected. I will also investigate the possibilities for implementation within the 'real environment' under the University Identity Program. This will entail assessing the solution's suitability for incorporation and application across the 'actual' location of the campus and its facilities management. i.e. directional signage, building identification, traffic guidance etc.

This study mainly focuses on the methods by which information products can conceived by embodying solutions designed for 'real space' into a 'web space'. However, it is the potential of expanding yet further into 'cyber space' that presents the most exciting challenge for today's information designer, for a 'cyber world' can also incorporate products of the imagination. Is it feasible that the very same disciplines, working methods and the common international language of the information designer might have a place in both the 'virtual' and 'actual' worlds? My studies lead me to believe this to be the case.

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