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**Interior Semantics Of The Lobby/Waiting Area In General Hospitals; A
Preliminary Study**

Abstract

Semantics is the study of meaning in communication. The communication interprets in the study is between human and the artefacts in the immediate surrounding. The paper covers the theoretical basis of the study which includes the independent and the dependent variables. It serves as an overview of the literature and theory on the semantics input in the reception/lobby area. The study of perception in the sphere of design is of great interest to interior designers as it can be used to establish relations between the patient's perception and design features. Designers need to understand the end users' needs and requirements in designing for healthcare environment.

Keywords: waiting area, affordances, interior semantics, seating design

INTRODUCTION

Semantics in Greeks refers to *semantikos*; significant, to signify; the study of communication, used by the linguists in the interpretation of signs. The word semantics are also used by communities within particular circumstances and contexts. It has related meanings in several other fields. Traditionally, the formal semantic view restricts semantics to its literal meaning, and relegates all figurative associations to pragmatics, but this distinction is increasingly difficult to defend. The degree to which a theorist subscribes to the literal figurative distinction decreases as one moves from the formal semantic, semiotic, pragmatic, to the cognitive semantic traditions.

The word semantic in its modern sense is considered to have first appeared in French as *semantique* in Michel Breal's 1897, *Essai de semantique*. In International Scientific Vocabulary semantics is also called *semasiology*.

According to Alfred Korzybsky's General Semantics, the discipline of semantics is a system for looking at non-immediate or abstract meanings.

Since then the word semantics have been used by product designers to describe the study of the symbolic qualities of product in its social contexts. Product semantics was introduced by Butler and Krippendorf and is defined as the study of symbolic qualities of man-made shapes, in the social context and application in industrial design [Demirbilek, 2003].

In this paper the authors are studying the products in the social context of a particular interior environment. The interior environment which is the focus of the study is the reception/lobby/waiting area of the general hospitals in the northern parts of Peninsula Malaysia. It covers the theoretical basis of the study which includes the independent and the dependent variables. It serves as an overview of the literature and theory on the semantics input in the reception/lobby area. The study of perception in the sphere of design is of great interest to interior designers as it can be used to establish relations between the patient's perception and design features.

2.0 THE CONCEPTS OF SEMANTICS AND ITS APPLICATION IN PRODUCT AND INTERIOR DESIGN

The section is to introduce the concept of the Semantics, its definitions from the views of the attempted to find associations between the physical characteristics of products or interior settings and the observer reaction.

There are many studies on the evaluation of particular aspect of the product or interior settings including for example, observers preferences in the surface finish and touch (Barnes et. al., 2004), relationships between humans and

technology-enhanced spaces and physical objects (Valli, 2006), Emotional Extraction System by Using the Color Combination (Sato, 2005) and to improve the product's ease of use and to promote or negotiate enriched experiences between people (communities) and people.

You[2007] study the application of affordance and semantics in product design. Affordance is one of the semantic dimensions describing operational meanings of objects. He emphasis that affordance could be appropriately denotes as all possible behaviour [form] that confirm what users expected from the objects. Vihma[2003] emphasis that the person-object relationship becomes more interactive by giving the artefact/object a bigger role. The affordance of an object is an example of such interactive role. According to her the position, movement of a particular product or artefact will provokes mental responses and produces impressions, represents and exhibit qualities. In another words users adjust to these affordances to accommodate their needs.

3.0 THE METHODOLOGY

Reviews are made from literature to provide backgrounds and some framework in developing the theory and methodology for the research. The preliminary stage is the study in the context of discovery. The applied methods for data collection at this stage are site visits and observation.

4.0 VARIABLES FOR INTERIOR SEMANTICS / RELEVANCE AND IMPLICATIONS OF SEMANTICS INPUT IN THE RECEPTION/LOBBY AREA

The research observation took place at the waiting area in the General Hospital in Bukit Mertajam. The area of observation includes the public seating, the counter area, ventilations, floor tiles, plants and the overall arrangements and purpose according to the patients needs. The interior settings in figure 4.1 and 4.2 of the waiting area consist of plastic public seating arranged in the sociofugal arrangements. "Architecture plays an important role in governing our perception and behaviour, including social interactions, within our built environment" (Brebner, 1982, p. 152).

Not only are the interactions within a physical environment determined by the physical setting, but the behaviours and interactions also shape and develop these environments. These behaviour settings provide cues for behaviour and therefore, the physical environment can be seen as a form of nonverbal communication (Rapoport, 1976).

Figure 4.1



Figure 4.2



"The notion that the arrangement of space can influence social support is based on research showing links between environmental factors and social behaviour" (Fleming et al., 1985, p. 328). Each environment consists of a series of behaviour settings. These settings are controlled by aspects of the

environment that support or allow particular behaviours and activities (Al-Homoud, 1996)

THE SEATINGS



Figure 4.3



Figure 4.4

The figures above showed the typical seating lobby chair and arrangement. The injection moulded plastic chairs are the usual choice in most hospitals waiting and lobby areas. They are chosen due to being the cheaper alternative in the market.

The primary function of a seat is to support body mass against the force of gravity [Bridger, 1995]. In terms of the design outlook the semantic of the waiting chair is quite simple and boring and yet to some extent practical in use. The dark blue colour is a bit toned down and gives a dull look to the waiting area although it is a cool colour which could tune down the worried patients and families. Cool colours brings relaxation, calmness, and assist in reducing blood pressure [Linong, 2006]

Comfort was the last thought in the choice. It was observed that the least waiting time for a patient was 15 minutes and the waiting time could go for 1 hour to 2 hours. Patients would change posture several times to ease the discomfort. The discomfort is resulted from lack of postural variation permitted by a particular design [Bridger, 1995]. The chair certainly does not have any postural variation to reduce discomfort.

Some patients would fold arms or cross their legs in trying to ease the discomfort. Usually after 15 minutes patients start to feel uncomfortable and their reaction is to stand up and walk for a few steps.

When their name are called, the patients seating in the middle row would have some difficulty standing up and walking because they have to walk sideways in front of the other seated patients. Not enough space allowance in between the rows is the problem. The intended affordance is not met. Poor design according to Blumberg and Devlin [2006], can lead to psychological stress which contributed to the feelings of hopelessness, anxiety and frustrations in patients and supportive design of physical features could reduce the stress. The arrangement of the chairs from observation of the users in the waiting area strongly supported their findings.

Another major point in the observation is patient tends to find a seat where there is nobody taken the nearest seat. They would choose an alternate seat. When and only that is the available seat, the seat would then be taken reluctantly. Lawson [1999] attributed the behaviour as a stranger seated next to someone is actually within each other intimate's distance. The seating arrangement is forcing strangers to 'interfere' with another stranger's intimate distant.

THE COUNTER



Figure 4.5

The transparent window at the counter made of glass is for protecting the hospital clerks from the users or patients. The window is part of the counter compartment as to dealing with the users before given the instruction to be warded. In addition, the transparent quality and the adequate size of the window further offer the users the affordance to “see-through”, which is crucial to the monitoring function. To help the hospital clerks to deal with the customer or patients there are two vertical peep lines functioning for interactions and dealing purposes. The affordance of the peeping line is 160 in centimetres which is too low for some people. Higher people intend to lean and rest their arms on the counter which brings discomfort and stress if the waiting takes a longer time. The design at the top counter is a vertical shaped is a bit off balance from the whole counter outlook. However, this design at the top counter is more decorative than functional.



Figure 4.6



Figure 4.7

The determination of ways the patient handle stress in the waiting area is an important issue. The comfort of the waiting area is not only determined by the conditions of the waiting area, however it is also affected by the impression of

the interior materials. One of the interiors that applied wood into its design is the counter top at the “Unit Hasil and Bilik Daftar Masuk”. In design, it is thought that wood is natural to residents which gives a natural feelings. It is also necessary to give consideration to the active used of wood. It was found that the “natural” image increased when the proportion of wood was higher, and that “closed,” “less tense,” and “dark” image increased when the proportion of wood was increased. Therefore, it was concluded that it was necessary to apply wood in moderation, and to design wood appropriately. According to Broman [2001], preferences for knotty wood, and pointed out that higher lightness and the grain of wood are important, and the vitality of wood surfaces have an effect. Another researcher Ridout et. al. evaluated impressions by the semantic differential (SD) method using projected images of offices in which wood was used for furniture and floors in different proportions. As a result, it was concluded that offices in which more wood was used gave immediate impressions such as “comfort” and “calmness.” Sakuragawa [2006] claimed that wood finishes stimulates geater desire for calmness. His research reveals further that when there is greater proportation of wood finishes, it would induced low desire for activities. On the other hand when there is absent of wood finishes, the ambiance would stimulated greater desires for activities.

THE FLOOR



Figure 4.8



Figure 4.9

The floor finishes used for the waiting area is the ceramic tiles. The size is 12" by 12".

The main colour for the tiles is lighter shade of brown and some patterns are designed using yellow, brown and light brown. The effect is a pleasing and comfortable feeling without too much of the distraction to the eyes for the people waiting to be seen by the doctors. The texture is smooth but not slippery. People are observed to walk comfortably on the surface. This is in accordance to Akalin-Baskaya and Yildrin [2006] who show that wrong materials choice will harm all the advantages aspects of an interior since interior finishing materials affect the users by their visual, aural and thermal qualities.

5.0 PATIENT'S PERCEPTION AND DESIGN FEATURES VARIABLES

The language of form of the physical features and the space within the waiting area the authors would coin as the interior semantics.

Space is not just a frame or a container but is a tool of thought which individual may give impression to themselves [Halford and Leonard, 2006]. Spaces according to them are physical representation of discursive construction. The current research reveals that furniture and arrangements in the waiting area do give physical representations.

The physical features such as the seating, the seating arrangement, the counter and other features and their relation to human factors plays major part in determining the users' interpretation. The seating clearly afford users' action, they direct and probably limit users' movement. The furniture in the waiting area seems to control the action and leave almost no other alternatives which gives negative interpretation to the users.

How could this negative interpretation be changed to more conducive ones? How could the interaction between users and the interior semantics be change and in what way? A study by Akalin-Baskaya and Yildirim [2006] showed that users had more positive perceptions of the waiting area where the seating were away from the circulation than the waiting area where circulation passed through a space.

The boundary of the waiting area needs to be clearly defined. Vihma [2003] suggests a waiting area should include flexible furniture that can be arranged according to the changing needs.

- Colour [blue chair]
- The arrangement of the chair/benches
- The location
- The counter; the height, the
- The fan, location
- The floor tiles: colour; texture for safety; sizes

6.0 CONCLUSION

The waiting area is a first point entry to users [patients and their companions] in their hospital experience. The physical environment could provide them with welcoming experience or otherwise. Affordances which are the meanings of things for actions in the waiting area do not provide the users with much to be desired. In other words through observation, the interior semantics need some modifications for users' comfort and satisfactions. Designers for the hospital or healthcare environments should plan for the end users' need and requirements.

The next stage of the research would carry more finding and insights to the extent of semantic variables and real suggestions could be made for users' advantage.

BIBLIOGRAPHY

- Akalin-Baskaya, A and Yildirim, K. [2006], "Design of Circulation Axes In Densely Used Polyclinic Waiting Halls", Building and Environment. Vol. 42, p1743-1751.
- Barnes, C.J., Childs, T.H.C., Henson, B., Southee, C.H. (2004). "Surface Finish and Touch – A case study in a new human factors tribology". Science Direct. P. 740-750. (<http://www.sciencedirect.com>).
- Baxter, William H. [1995]. 'A stronger affinity...than could have been produced by accident': a probabilistic comparison of Old Chinese and Tibeto-Burman. The ancestry of the Chinese language, ed. William S.-Y. Wang, 1-39. Journal of Chinese Linguistics Monograph Series Number 8.
- Bell, P., Greene, T., Fisher, J., & Baum, A. (2001). Environmental psychology (5th ed.). Fort Worth, TX: Harcourt Brace Publishers. London.
- Blumberg,R and Devlin,A.S. [2006], "Design Issues in Hospitals: The adolescent Client", Environmental and Behavior, Vol.38 no. 293. Sage Publications. <http://eab.sahepub.com>
- Brebner, J. (1982). Environmental Psychology in Building Design. Elsevier Science Ltd.
- Breal M (1897 [1900]) Essai de Semantique, Hachette: Paris. Translated by H. Cust as "Semantics: Studies in the Science of Meaning", London: Heinemann.
- Bridger,R.S. [1995], Introduction to Ergonomics, McGraw-Hill Inc.
- Broman NO (2001). "Aesthetic Properties in Knotty Wood Surfaces and their Connection with People's Preferences". J Wood Sci 47:192-198.
- Coates, D. (1978). "Lecture 16: Aesthetics and the Relationship between Human Factors and Industrial Design." Detroit Department of Industrial Design, Center for Creative Studies.
- Coates, D. (2002). Watches Tell More than Time: product design, information, and the quest for elegance. McGraw-Hill, London pp. 112-113.
- Desmet, P. (2002). Designing Emotions, Delft University of Technology. Netherlands.
- Feijs, L., Kyffin, S. and Young, B. (2005). Design and Semantics of Form and Movement. Proceedings. Northumbria University.
- Fleming R, Haxton MJ, Hamilton MP, McCune GS, Black WP, MacNaughton MC and Coutts JR (1985) Successful treatment of infertile women with oligomenorrhoea using a combination of an LHRH agonist and exogenous gonadotrophins. Br J Obstet Gynaecol 92,369–373.[\[ISI\]\[Medline\]](#)
- Halford,S. and Leonard,P, [2006], Place, Space and Time: Contextualizing Workplace Subjectivities Organization Studies,; 27,657. <http://oss.sagepub.com>

- Hall, E (1966), *The Hidden Dimension*, New York: Premier Books.
- Hartig, Terry, Marlis Mang and Gary W. Evans (1991). "Restorative Effects of Natural Environment Experiences." *Environment and Behavior* 23(1): 3-26.
- Hartig, T., Book, A., Garvill, J., Olsson, T. and Garling, T (1996). Environmental influences on psychological restoration. *Scandinavian Journal of Psychology* 37, 378–393.
- Heise, D.R. (1970). *The Semantic Differential and Attitude Research*. Attitude Measurement. Pp. 235-253.
- Herzog TR, Black AM, Fountaine KA, Knotts DJ. (1997) Reflecting and attentional recovery as distinctive benefits of restorative environments. *JOURNAL OF ENVIRONMENTAL PSYCHOLOGY*. 17:165-170
- Hodgson, Frederick Thomas (1901) *Plaster and Plastering: Mortars and Cements, How to Make and How to Use*. New York: The Industrial Publication Company,
- Houser, K. W. (2002). Measuring the Subjective Response to Interior Lighting: Paired Comparisons and Semantic Differential Scaling. *Lighting Res. Technol.* 35, 3, Pp.183-198.
- Hsu, S.H., Chuang, M.C. and Chang, C.C. (2000). A Semantic Differential Study of Designer's and User's Product Form Perception. *International Journal of Industrial Ergonomics*, 25, 375-391.
- International Herald Tribune: The Global Edition of the New York Times, Style and Design Feb 4 (2007). <http://www.iht.com/articles/2007/02/04/features/design5.php>.
- Krozybsky, A. (1954). *Science and Sanity*, The International Non Aristotelian Library Publishing Company, New York.
- LaPiere, R. T. (1934). Attitudes vs. Actions. *Social Forces*, 13(2), 230-237.
- Lin, R., Lin, C.Y, Wong, J. (1996). An Application of Multidimensional Scaling in Product Semantics. *International Journal of Industrial Ergonomics*, 18, Pp. 193-204.
- Llinares, C. and Page, A. (2007). Application of Product Differential Semantics to Quantify Purchaser Perceptions in Housing Assessment. *Building and Environment*, 42, Pp. 2488-2497.
- Lawson, B [1999], *The Language of Space*, Architectural Press.
- Mooij, M. (1998). *Global Marketing and Advertising-Understanding Cultural Paradoxes*. SAGE Publications, London pp. 95.
- Muderrisoglu, H., Eroglu, E., Ozkan, S. and Ak, K. (2006). "Visual Perception of Tree Forms". *Building and Environment* 41, Pp. 796-806.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning*. Chicago: University of Illinois Press.

- Osmond, H (1957) "Function as the Basis of Psychiatric Ward Design", *Mental Hospitals (Architectural Supplement)*, Vol. 8, pp. 23–29.
- Ozbilen, A. and Kalin, A. (2001). "The Semantic Value of Plants in the Perception of Space". *Building and Environment*. 36, Pp. 257-279.
- R. Kaplan (2001) "The Nature of the View From Home: Psychological Benefits". *Environment and Behavior*, 33, 507-542.
- Rapoport. (1976). *Mutual Interaction of People and Their Built Environment*. Walter De Gruyter Inc. London.
- Sakuragawa, S. (2006). "Change in the Impression of Rooms with Interior Wood Finishes Arranged Differently: Questionnaire Survey with the Use of Photographs for the Analysis of Impressions of Rooms Concerning Living Activities". *J Wood Sci*, 52: 290-294.
- Serra, R. (1998). Chapter 6 – Daylighting. *Renewable and Sustainable Energy Reviews*, 2, Pp.115-155.
- Sato, K., Mitsukura, Y. and Fukumi Minoru (2005). "Emotional Extraction System by Using the Color Combination". Springer. Pp. 258-262.
- Shibata, Seiji and Suzuki, Naoto. "Effects of an Indoor Plant on Creative Task Performance and Mood." *Scandinavian Journal of Psychology* 45 (Nov 2004): 373-381.
- Taylor, R.B. (1988). "Human Territorial Functioning: Empirical, Evolutionary Perspective on Individual and Small Group Territorial Cognitions, Behaviors, and Consequences". Cambridge University Press. London.
- Ulrich, R. S. (1984). "View Through a Window May Influence Recovery from Surgery". *Science*, 224 (4647), 420-421.
- Ulrich, R. S., Simmons, R. F., Losito, B. D., Fiorito, E., Miles, M. A. & Zelson, M. (1991). "Stress recovery during exposure to natural and urban environments". *Journal of Environmental Psychology*, 11, 202-230.
- Valli, A., (2006). "The Design of Natural Interaction". (<http://www.naturalinteraction.org/files/whitepaper.pdf>).
- Vihma, S "On Actual Semantics and Aesthetic Interaction with Design Objects", Publication Series of The University of Art and design, Helsinki, UIAH. <http://www.ub.es/5ead/PDF/6/vihma.pdf>, surfed on March 2008.
- Wittgenstein, L., (1958) 2nd Ed, 'Philosophical Investigations,' Oxford: Blackwell Publishers Ltd.
- Wittgenstein, L. (1969). "On Certainty", edited by G.E.M. Anscombe and G.H. von Wright, translated by Denis Paul and G.E.M. Anscombe, New York: J. and J. Harper
- You, Hsiao-Chen. (2007). "Applications of Affordance and Semantics in Product Design". *Design Studies*, 28, Pp. 23-38.

Zammuner, V.L. and Galli, C. (2005). "Wellbeing: Causes and Consequences of Emotion Regulation in Work Settings". International Review of Psychiatry, 17 (5): 355-264.

Zuuring, H.R. (2006). The Evaluation of Bending Moment Resistance of Single Wood Plate Corner Joints in Particleboard. (<http://www.allbusiness.com/agricultureforestry/forestry-logging-forest-nurseries/872591-1.html>).