Relevance of Metaphysics on Functional Performance of Commercial Building Designs

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ABSTRACT

This paper presents the findings of a study on the relevancy of metaphysics on functional performance of commercial building design. Similarities in principles on building design and planning practices by three major Asian cultures, the Chinese-Buddhist, Indian-Hindu, and Malay-Islam, are looked into. The main aim of the study was to gouge whether the selected existing building designs were in compliance with any metaphysic theories and conformance with certain an established standard commercial building design guidelines. There are 13 commercial premises owned by Government agency were selected and of these, six were categorized under “performing”, while seven were “non-performing”. Two locally well-known commercial premises were used as “benchmark”. A combination technique done previously by others with observational procedure was devised in the analysis process. The findings reveal some evidence that metaphysics had certain influence towards functional performance of the commercial buildings and could be considered to complement the modern design practices. However, further analysis needs to be carried out involving larger number of samples and area coverage to confirm the findings of the present study.

Keywords: Metaphysics; Commercial Building; Functional Performance

INTRODUCTION

In a report published in 2010 indicated that newly established malls enjoyed high visitation rates compared to older ones (Group, 2010). The success was much dependent on the economic climate and rigorous marketing strategies. Providing entertainment in shopping malls is common to attract visitors and shoppers. This shows that people work diligently towards buildings sustaining customer visits rather than emphasising on building functionality to encourage attraction.

It seems, the aesthetic aspect became the most concerned criteria as providing success in most recent commercial buildings. The motivation for the study to be conducted was based on the implication that a number of Government agency-owned business premises or commercial buildings (GAB) have not performed well as intended (METRIX), 2005; KPMG, 2006). GAB is an agency established by the government to encourage the participation of bumiputras in business and entrepreneurship. As part of
the strategies, the agency has developed physical infrastructure including commercial buildings or complexes in various locations and sizes, nationwide.

There are various factors contributing to these failures such as location of the building premises, improper planning and designing of the buildings, types of building purpose and how they are managed and operated. The main aim of this study is to discover whether metaphysics factors influence the performance of buildings. The study attempts to determine whether the two systems (traditional and modern approach) have certain bearing towards the functional performance of commercial premises. The study is focused on GAB existed at various locations. The management decided the selection of premises and locations for commercial premise with the advice from consultants. It is estimated the number of Government agency-owned commercial premises are more than 500 nationwide. These premises are rented to bumiputra-owned small businesses or individuals at a minimal rental rate. In addition, this agency also provides advisory service to business owners as part of the scheme at nurturing and guiding them to succeed in business. The details of research stages and objectives are as Figure 1.

![Figure 1. The Research Stages and Objectives.](attachment:image.png)

The study areas had focused on two states in the central region comprising Selangor and Negeri Sembilan. The samples were divided into three categories; Category A: Government agency-owned buildings (performing cases) - 7 samples; Category B: Government agency-owned buildings (non-performing) - 6 samples; Category C: Two prominent commercial buildings i.e. SOGO in Kuala Lumpur and PKNS Complex in Shah Alam were selected as benchmarks (where business is good) in the analysis.
LITERATURE REVIEWS

The term “functionality” is roughly defined as the quality criterion of a building that makes it sustainable and serving the needs of people. It is based on the principle that the ultimate purpose of design where “users’ well-being” shall take precedence over other priorities to bring together a sense of dignity and pride within the design environment (Caan, 2011). Caan insists that the basic purpose of design is to create a comfort zone in satisfying human five senses, health, and harmonious feelings; thus, encouraging towards a sense of inspiration and motivation. Such philosophy had already been practiced by a populace of the Malay ancient kingdom (Al-Ahmadi, 2006; Gibbs, 1987) and peoples in other Asian countries like China and India. These old practices had established systems that were used as informal guidelines in planning and design for buildings they built or settlements they planned.

The metaphysical approach system is a guide to satisfy the human’s enthusiasm for a more successful life; harmonious, healthy, upholding and advancement. It provides a set of followed rules to have the best alignment of the proposed building with the entire universe (Gibbs, 1987; Koh, 2003; Pegrum, 2000). This alignment was relating to the sciences of the cosmos or cosmology (Akkach, 2005) and is interrelated to the arts and science of Geomancy (MacLean, 1997). Today, the term ‘environology’ is commonly used to denote this practice (Malaysian Institute of Geomancy Sciences, 2014).

Metaphysics is a branch of philosophy consisting an abstract theory that beyond the reality (Oxford University Press, 2014). It relates to the unseen flow of energy forces that can felt through experiencing. The word ‘energy’ was identified as the ability to be active in terms of the physical or mental strength. It allows people to behave which relates to naturally enthusiasm and effort; usable power that comes from heat, electricity, etc. (Merriam Webster, 2014). The Metaphysical approach revolves around the Universe and the Earth. It was interconnecting to each other by an ‘electromagnetic field’ and other forces, such as gravity, uptake of earth forces, cosmic forces, etc. The same nature applies for buildings designed by humans, aiming to achieve sustainability.

PROBLEM STATEMENTS

The original design and planning of the Hong Kong and Shanghai Bank in Hong Kong is an example where metaphysical approach was adopted and proved to be a success. Designed by Norman Foster, inputs from a geomancer during the design stage were followed closely, including comprehensive study of the circulation routes and structural elements, for better prosperity (Lip, 1997). According to Lin (2014), the physical design and planning of most buildings in Singapore’s commercial area had direct involvement of a Feng Shui master. The late Prime Minister, Lee Kuan Yew, insisted this requirement. It begs the question whether physical planning of buildings that relies on
modern approach is sufficient to predict the building performance once in operation and if metaphysical factors can be considered during the planning and design stages.

Contemporary building designs have been criticised for having little or no reference to the natural and spiritual context in which the building stands. Such neglect had probably contributed to failures of buildings to perform functionally as intended. Thus, it is interesting to find out whether the consideration of metaphysical factors in planning and design influenced the business.

METHODOLOGY

A research study by (Poldma, 2010) stated that the analysis using subjective experience uncovered issues that are functional. According to her, listening to the users allowed the design researchers to glean what they wanted. Hence, the present study decided to use the same observational approach methods with analysis of floor plan and Google Satellite Image techniques used by M. R. M. Daneshvar et al, 2013; Saruwono, 2007. The study had some limitations with regards to the choices of samples, but shall be accepted for the aim of this study.

For the present study, both quantitative and qualitative methods are used with the observational approach and techniques were adopted in extracting information and data gathering. The process involved include visiting and studying buildings of similar function or type, and/or observing the buildings’ physical design and planning characteristics (Foster, 2008). Aspects of study include the examination of the spatial zoning, organization, adequacy of spaces, and environmental comfort.

The identification of GAB in Selangor and Negeri Sembilan was carried out with the assistance from their officers. Thence, buildings were categorized into “performing” and “non-performing”. Some private document review data also helpful in identified the selections of performing criteria. The criteria set for a performing building are based on high frequency of people visiting, and with good occupancy rate of above 80%. The premise should also enjoy a good rental collections records, with a minimum cost for utilities maintenance. Besides, the businesses carried out in the premises are profitable based on the monthly collection record. As mentioned previously, two prominent commercial building “where business is good (sustain more than 20 years)” were taken as a benchmark or “control samples”.

The metaphysical principles criteria were derived from three established Asian cultures namely the Feng Shui, Vastu Vidya and Tajul Muluk. There are five metaphysical principles, which were extracted from these practices, namely energy generator or accumulation, building orientation, spatial hierarchy, physical configuration and symbolism. A systematic observational analysis tool and procedure was devised and data collection was undertaken by employing previous techniques done by others.
Altogether, there were 13 metaphysical elements, which were taken as compliance variables. The total "score" for each case (commercial premise) is the sum of all 13 variables converted into percentage in the analysis. The mapping of variables on physical design and planning of building against the Traditional Metaphysics Approach Guideline (TMG) criteria, and together with the Standard Commercial Guidelines (SCG). The SCG comprised 19 conformance variables under three main principles: physical functioning, comfort and convenience, and pleasure (moral and physical). Similar scoring method was used as with metaphysical elements, adjusted to 19 conformance variables. Each building was analysed against both approach and guidelines. From the data several interesting findings were discovered.

The analysis is based on the existing images on physical design condition, and the building layout planning. The building-surrounding context was taken from the Google satellite images accessed in September 2015. Philosophically, all of the TMG and the SCG characteristics were assessed point-by-point at the selected samples. It should be mentioned that during observational visits, several tools were used for measurement instrument such as laser measurement, light meter, indoor thermometer and compass.

**RESULTS OF ANALYSIS**

As for GAB, the total numbers are 13. For the purpose of the analysis, each was labelled with a code denoting the name of building; 6 ‘non-performing’ (NSA, RBA, KDA, KJA, JMA and LCP), 7 "performing” (SBA, SCP, SPD, TSA, ARM, AGK and SBC) and two benchmark buildings (labeled as PKA and SOA).

Referring to the Figure 2, there are two sets of data, A and B. Set A is a performing buildings category including benchmark. While the set B is a non-performing building category. Further observed on the set A data on performing buildings, there are two cluster sets were identified. Most of the observations, the TMG score distribution growing outward than the SCG score (some with TMG perfect score), so the distribution is inward-skewed. There are two outliers (AGK and TSA), which is show that the TMG score distributions shrink inward than the SCG score, so the distribution is outward-skewed. Further explore on this two outliers is needed for the next stage.

Different observation of distribution of data for set B, non-performing buildings. All of the TMG score distributions shrink inward than SCG score (TMG score almost close to 0%), so the distribution is outward skewed. Buildings that complied with TMG and conformance with SCG tend to perform better. Unexpectedly, it appears that the higher its score for TMG, obviously influence on its performance more that the score for SCG.
Verification and Correlation of Data

The following table depicts the results of the Mann-Whitney U Test on the two guidelines system towards the performance of commercial buildings, in order to see their influences. The test revealed significant differences in the performing levels of TMG compliances with z value at -2.669 (rounded) with a significance level (p) of p= 0.005. The probability value (p) is less than or equal to 0.05, so the result is significant. This is contrary to the performing levels of SCG conformances. The z value is -1.668 (rounded) with a significance level (p) of p= 0.101. The probability value (p) is more than or equal to 0.05, so the result is insignificant. There is statistically significant difference in the performing levels of TMG compliances, but not for the performing levels of SCG conformances.

Table 1
Mann-Whitney U Test on the Two Guidelines System Towards the Performance of Commercial Buildings

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMG_Compliances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGA (Perform)</td>
<td>7</td>
<td>9.64</td>
<td>67.50</td>
</tr>
<tr>
<td>SGA (Non-perform)</td>
<td>6</td>
<td>3.92</td>
<td>23.50</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCG_Conformances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGA (Perform)</td>
<td>7</td>
<td>8.64</td>
<td>60.50</td>
</tr>
<tr>
<td>SGA (Non-perform)</td>
<td>6</td>
<td>5.08</td>
<td>30.50</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The table also indicates which group can be considered most influential towards the performance of commercial buildings, overall; namely, the group with the highest mean rank. In this case, the TMG compliances (Mean Rank= 9.64) had higher influences towards a building’s performance rather than the SCG conformance.

The findings provide some evidence that metaphysics strongly influences the functional performance of commercial buildings. The z value that is reported in the output is used to calculate an approximate value of r score (an ‘effect size’ or ‘strength of association’). The value of r = z/ square root of N, where N= total number of cases. In this case, z= -2.669 and N= 13; therefore the r-value= -0.74. According to Cohen (1998) as cited in Pallant (2010), this would be considered a large effect size.

**Spearman Results on The Most Influencing Components of TMG**

The correlation analysis is used in order to gauge the strength and direction of the linear relationship between two variables. The Table 2 shows the Spearman Rank Order Correlation (Rho), provides the correlation coefficients between each pair of variables listed, their significant levels and the number of cases.

The relationship between the components of TMG and the Overall Total Combined Results (OTCR) was investigated using the Spearman Rank Order Correlation (Rho). According to Cohen (1998), cited in Pallant (2010) suggest that r = .50 to 1.0 (large), r = .30 to .49 (medium) and r = .10 to .29 (small). In the table presented above, there is a large correlation for the three TMG component namely energy, orientation and symbolism (above .5). The configuration is considered as small correlation based on the data (below .29).
Further assessment on TSA building (with lowest OTCR under the performing category) shows that, its only score for configuration and orientation component but able to perform. However, NSA building (with the same OTCR score as TSA, 15%) is also perfectly score for configuration component with 0 score for the others TMG component is under non-performing category. The findings suggest that the orientation component is the most influencing factor in the functional performance of commercial building design, which also supported by the above Spearman’s results. Then, the sequence followed by others component: energy generator, symbolism, spatial hierarchy and the last is configuration.

**DISCUSSION**

This current research has made an experiment on performing and non-performing building. This study was tested physical design and planning of a building on the
compliances with metaphysical approach (TMG) components and conformance with standard commercial guidelines (SCG) components. The TMG criteria consist of five main components namely energy generator or accumulation, orientation, spatial hierarchy, configuration and symbolism. While, the SCG criteria consist of three main components namely physical functioning, comfort/ convenience afforded and pleasure.

Buildings that complied with TMG and conformance with SCG tend to perform better. There are three SGA premises, which highly comply with all the criteria, namely ARM, SCP and SBC. Surprisingly, the entire premise were not totally managed and operated by the SGA (only a few commercial lots are belongs to SGA not the entire building). The highest overall score (88%) for performing building has been existence for 17 years. It appears that appearance not considered as main factors for building performance.

The Spearman’s results reveals that the orientation component is the most influencing factor in the functional performance of commercial building. Then, the sequence followed by others component: energy generator, symbolism, spatial hierarchy and the last is configuration. The findings also provide some evidence that the higher subtle energy component approach application on the design of the building, the higher it’s performed and prosper.

Based on the results from the above data, it could be possible to establish an indicator to categorize the levels of functional performance of buildings. In the context of the study, it may be appropriately known as “Functional Performance Indicator” (FPI). For this purpose, it is suggested that four levels namely ‘Very Efficient’, ‘Fairly Efficient’, ‘Adequate Efficient’ and ‘Inefficient’ indicate FPI ranges. In terms of scoring, these score indicate by >75%, 50%-75%, 25-49% and <20% respectively. The following table summarize the FPI:

Table 3
A Rudimentary of Functional Performance Indicator (FPI)

<table>
<thead>
<tr>
<th>COMPLIANCES RANGE</th>
<th>INDICATOR</th>
<th>CRITERIA IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 75%</td>
<td>Very Efficient</td>
<td>• Shows good score in the TMG and SCG criteria (above 75% respectively). Most of the buildings in this range almost perfectly score for application of energy generator or accumulation, the orientation of the building and symbolism. Others component are moderately high.</td>
</tr>
<tr>
<td>50% - 75%</td>
<td>Fairly Efficient</td>
<td>• Shows better score in TMG criteria (complies to more than 60%). Mostly complies to the needs of the five senses. Moderate scores for the SCG criteria (compliances range between 40%-50%)</td>
</tr>
<tr>
<td>25% - 50%</td>
<td>Adequate Efficient</td>
<td>• Shows lower score for TMG (below 25% compliance) but not in the SCG criteria (compliances range between 40%-60%). Better</td>
</tr>
</tbody>
</table>
only terms of physical appearance using corporate theme but with no symbolism (spirit, motivation and beliefs) to cater to the five senses.

<table>
<thead>
<tr>
<th>&lt; 25%</th>
<th>Inefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Shows lowest score for TMG (15% and below) and SCG (in the range 25%-40%). There is build-up of negative energy such as stagnant air, trapped heat, in proper planning and no interior or exterior enhancement elements.</td>
</tr>
</tbody>
</table>

CONCLUSION

This current research is a unique approach. The approach appears establishing a simple method of assessment, which can easily repeated by other researchers. The study has highlighted how factors linked to non-performance of commercial buildings that explained by critical analysing it within the context of metaphysical criteria and Standard Commercial Building Guidelines. The findings provide some evidence that metaphysics has, to certain extent, influenced the functional performance of the buildings.

A comprehensive literature study that combined common characteristics found in three Asian culture-based system which had established five main criteria components which formed the metaphysical elements. A reasonable result obtained which implies the relevance of metaphysics.

The study also has proposed a rudimentary ‘Functional Performance Indicator’ (FPI) that incorporates metaphysical criteria within the overall guideline for the development of commercial buildings. Perhaps it also can be used to assist the performance of different types of buildings. Future studies may explore and validate the utility of this FPI, particularly as a practical instrument for sustainability. The ‘indicator’ may be useful in enhancement of building functional performance.

The belief systems in the three Asian cultures included in the study may have been seen as religiously inclined, but based on the investigation, the relevance criteria are mostly physically and logically practical rather than what is considered as spiritual.

It was anticipated that this research work would uncover a new vision of reality towards the traditional metaphysical approach. The metaphysical principles seen are more related to environmental sciences rather than ‘mystics’, with some insight on design sensitivities and preferences without losing positive social and spiritual values.

Hopefully its may help the traditional metaphysical approach to ‘grow’ in line with the inherited positive traditional values of the Malaysian society. Indeed, the cultural values and traditions are sustained for the goodness and the appreciation of future generations. They also increased sense of national pride and consciousness.
At this point, it is pertinent that a more comprehensive and detailed study undertaken in the future regarding the metaphysical principles especially in the Malay-Islamic architecture. A more detailed analysis has to be carried out in order to confirm the findings involving more different categories of samples. Perhaps, an experimental method is needed in getting analytical model of sciences to reveal the existence of subtle energy in space. There is a need to further explore more detail on the metaphysical criteria and can be further added in the future.

Thus, the general conclusions for the main outcome contribution have reveal that metaphysics become an important factor influencing the functional performance of commercial building design. Metaphysics seems to be of relevance in modern design practice.

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REFERENCES


