

PROMOTING FLEXIBLE WORKPLACE TO ENHANCE PRODUCTIVITY OF OFFICE WORKER

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ABSTRACT

To improve workforce productivity and to make major cost savings, various innovative workplace concepts are being utilised. A carefully planned workplace can have a significant impact on the performance of an organization. Even though the importance of flexible workplace towards increased productivity has been identified as a vital point in workplace planning and designing in Sri Lankan office context, there is a lack of research done on the enhanced productivity of office workers of public sector offices in Sri Lanka through the flexible workplace approach. Thus, this research was undertaken to study the relationship between productivity level of the employees and the flexible workspace design arrangements of workplace environment. Accordingly, the study was structured with a mix approach to accomplish the aim of this research. Literature revealed that flexible workplace approach relates to the concept of the physical layout and functional opportunities of the workspace which affect the office worker productivity and thereby conceptual framework was developed based on the literature findings. Through the case study approach, study identified the existing workplace practices. Expert survey was carried out to discover barriers, strategies which can be used in Sri Lankan office context when implementing flexible workplace approach. The gathered data were thereafter analysed using N-Vivo (2011) software. Finally, a framework was developed to promote flexible workplace concept in order to enhance productivity of the workers of Sri Lankan public offices. The framework could be useful for designers, planners and real estate developers to incorporate flexible workplace planning in Sri Lankan public office sector.

Keywords: Employee Productivity; Flexible Workplace; Office Buildings; Workplace Planning and Design.

1. INTRODUCTION

Employee productivity is an essential element of a company's success in today competitive business environment (Limor, 2007). Employees who are more satisfied with the physical environment are more likely to produce better work outcomes in every workplace (Lee, 2006). The workplace is a parameter of great importance for an organization, which affects worker productivity (Fassoulis and Alexopoulo, 2015). A carefully planned and implemented workplace and environment can have a thoughtful impact on the performance of an organization (Smith, Tucker and Pitt, 2010). More innovative workplaces may stimulate more innovative work, while helping attract and retain more innovative workers (Haynes and Price, 2004). The necessity to identify the importance of flexible workplace towards increased productivity has been identified as a vital point in workplace planning and designing in Sri Lankan office context.

Comparatively, there are few published researches on flexible workplace planning and design environment. Further, only few studies have addressed the public office sector and no study has been carried out about flexible workplace to enhanced productivity of office workers of public sector offices in Sri Lanka.

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2. LITERATURE SYNTHESIS

2.1. WORKPLACE PLANNING AND DESIGNING

Organisations are seeking ways to enhance their productivity in order to compete with the increasing competition worldwide. Enhancement of office worker productivity depends on several factors (Haynes, 2008; Bluysen, 2009; Bakker and Voordt, 2010). According to findings of Bakker and Voordt (2010) and Bluysen, (2009), mainly five factors should be considered by management of the organization to get the best productivity from employees such as Office Design, Management Style, Vision and Strategy, Technology and Downtime. According to research carried out by the American Society of Interior Designers (ASID) (as cited in Steiner, 2006), physical Workplace design is one of the top factors that impact the employee productivity.

According to Haynes (2008) it is most important to consider the Workplace Design contributions such as access to qualified workforce, workplace efficiency, productivity and cost reduction to achieve business objectives. Furthermore, Karen (2004) stated that a lot of organizations will look toward office Workplace Designs that will provide, open, technologically advanced, flexible, comfortable, and secure spaces with all the necessary components to attract and retain high quality employees and maximize productivity. Moreover, employees who are more satisfied with the physical environment are more likely to produce better outcomes in every workplace (Leaman, 1995; Roelofsen, 2002; Lee, 2006).

2.2. FEATURES OF WORKPLACE DESIGN TO ENHANCE PRODUCTIVITY

The American Society Interior Design (ASID) (as cited in Steiner, 2006) indicated that the following four primary areas in which workplace design impact the productivity: Accessibility, Employee comfort, Privacy, including limiting noise and distractions, Flexibility.

Accessibility - Accessibility is essential to provide productive communications within companies and all among workers (Schmidt and Simone, 1996). Hence, people need to move to a one place to another place in office premises to continue such focused affairs. In addition to that, several researches and case studies showed that improved accessibility; help increase productivity, including a clear link between higher density of workstations and higher employee productivity levels. **Comfort** - According to the ASID (as cited in Steiner, 2006), Comfort level of workplace directly impacts to the worker productivity and there is a positive relationship between employee's comfort level and productivity.

Ergonomics - Ergonomics is becoming a very vital issue in the workplace. Moreover, Gutnic (2007) stated that uncomfortable offices create a big issue by producing a variety of ailments, including headaches and pain and strains on the eyes, wrists, hands, arms, back and neck among office worker.

Lighting - Lighting is a one of the most critical elements in creating a comfortable work environment. According to Shabha, (2006), control of light in buildings is essential to creating an appropriate, effective and efficient working environment and enhanced worker productivity.

Colour - ASID (as cited in Steiner, 2006) realized that colour impacts attitude and comfort level of the employees. Although many research projects have been realized various types of colour impacts effects such as physiological, affective and cognitive on the worker productivity.

Noise and Acoustics - ASID (as cited in Steiner, 2006) found that poor noise level can have a severe impact on a worker's physical health and psychological well-being.

Indoor Air Quality (IAQ) - The poor indoor air quality causes a range of health problems such as sick building syndrome, workplace stresses (Axley, 1993). Several researchers realized that good indoor air quality is beneficial for health, comfort and productivity (Wargocki, Wyon, Sundell, Clausen and Fanger, 2000).

Furniture - Leblebiei (2012) emphasized that furniture and furnishing is one of the leading physical aspects comfort levels that directly influence the employee's better productivity. According to the result of several surveys (Gutnic, 2007; Haynes, 2008; Chandrasekar, 2011) furniture and furnishing are the most effective physical workplace environment factors which increases or decrease employee's productivity.

Privacy - Privacy is defined as "protections from sensory stimuli (auditory and visual) so an individual can concentrate, think, or talk about sensitive issues" (Smith and Kearny, 1994).

Flexibility - According to ASID (as cited in Steiner, 2006 survey respondents, if the organization wants to improve the productivity of their employees, workplace flexibility is a vital concern. They pointed out that flexibility also means designing offices that are adaptable to meet organizational members' needs and future needs of the organization to stay ahead of market competitors. Through the workplace changes such as providing flexible layout or design, access and privacy organisational flexibility can be improved (Bucki and Pesqueux, 2000).

This implies that due to the emergence of new technologies and the increase in global business competition, organisations need to consider very much about the concept of designing sustainable, flexible workplaces to accommodate various future changes quickly and effectively.

2.3. FLEXIBLE WORKPLACES

Implementing flexible workplace arrangements positively affect the quality of employees' personal lives. It will also help employers to improve the productivity and efficiency of their business and employees to maintain a work-life balance. Designers, developers, investors, facilities managers and planners always try to provide sustainable and flexible workplace facilities, where flexibility relates to the concept of the supple physical layout of the workspace (Bucki and Pesqueux, 2000; Bell and Anderson, 1999; Becker, 2002; Hassanain, 2006). Four major areas can be identified under flexibility concept in WPD as;

Planning of the building - When concerning the life cycle of the building, it is important to design for adaptability for alteration of the building which can be occurred in the future. According to the NCPP (2004), the adaptability of a building depends on requirements of building occupants, changing needs of occupants, work processes and layouts.

IT Networking - Technology is a major power of work and a fast driver of workplace design and strategy. Whenever companies that expect to improve in the future of workplace technology should start planning now if they want to compete in the future with flexible workplace arrangements with involvement of innovative technology.

Building service systems - Flexible building services should be able to support the operational necessities while responding to the changing requirements of an organization. Building service systems include Heat Ventilation and Air Conditioning (HVAC) systems, Lighting, Electrical systems and Water supply systems.

Layout of the physical workplace - According to the Hassanain (2006), workplace layout refers to an arrangement of everything needed for production of goods or services. Furthermore, the interior of a workplace layout should be designed to mainly focus their workers' requirements. It results in productivity of the workforce positively.

The next section explains the research method adapted to carry out the study.

3. RESEARCH METHODOLOGY

An extensive literature review explored flexible workplace planning and designing factors which affect the employee productivity. Afterwards, a mix approach was employed to establish the development of a flexible WPD approach for Sri Lankan public office buildings. In the first stage of data collection, the researcher obtained a comprehensive knowledge regarding the WPD practices in Sri Lankan public office sector. With the assistance of first stage information, the interview guidelines for second stage were developed.

Three cases were selected with the purpose of collecting data for this study. Three executive managers and 12 staff workers from each case were selected for carrying out interviews and questionnaire survey in selected three cases. The interviews were conducted with the relevant managerial level individuals of the respective case. Employee assessment survey was used for this study since it involves measuring office worker satisfaction level on workplace arrangements in related to WPD approaches, consists with 12 respondents from each selected Cases who are selected using convenience sampling. The five point (1-5) Likert scale was used to collect employees' responses and the composition of the questionnaire was designed with five sections with aid of literature findings. Hence, second stage data collection process consists with the expert opinion survey.

The composition of the questionnaire was designed with five sections identified from literature synthesis as having a significant impact on flexible workplace planning and designing including Furniture, Noise level,

Temperature, Lighting and Spatial arrangement. Further, the existing practises and comfort level on the workplace design relating to selected three Cases, expected by the employees in the office. In order to evaluate the likely occurrence of a certain event, mean weighted rating method can be adopted. The MR equation which has been used in this research study is:

$$\text{Mean Weighted Rating} = \frac{\sum (V_i \times F_i)}{n} \quad (\text{Eq. 1})$$

Where,

V_i = Rating for each factor

F_i = Frequency of responses

n = Total number of responses

The mean weighted rating for each factor was computed to deliver an indication of the “Satisfaction” level for each factor in the questionnaire survey. According to the analysis the factors, the factors which gained value below than 2.5 for the MR were taken as unsatisfied factor and greater than 2.5 for the MR were taken as satisfied level of each factors as the midpoint is 2.00 in three-point scale.

Expert survey was undertaken to investigate the strategies those can be applicable to Sri Lankan context. Interviews were conducted with five industry experts who are well experienced and engaged in Sri Lankan design industry using semi structured interviews. Content analysis using N-Vivo 2011 was used in data analysis. Finally, the conclusions and recommendations were drawn based on all findings of the research.

4. DATA ANALYSIS AND FINDINGS

Research findings arising from the three case studies and expert surveys are presented and discussed in this section.

4.1. FINDINGS OF THE CASE STUDIES

All the interviewees of the three cases strongly agreed without any hesitation that in a competitive business environment, achieving worker productivity is an essential part. When it comes to role of WPD, employees who are more satisfied with the physical office environment tend to produce better outcomes in every workplace. Based on manager’s experience and observations opinions most of the workplace environmental factors have an impact on worker productivity in office sector. As per the knowledge of different experts, respondents of the three cases are also strongly agreed that Accessibility, Comfort, Privacy and Flexibility are directly impacting on workplace environment due to different reasons. Apart from that, four respondents agreed that indoor air quality mainly impacts for the workers' mental fatigue and sick building syndrome and another two respondents stated that for future expansions and for achieving relaxing working environment flexibility factor has a direct impact. When addressing the issues of existing practices of workplace planning arrangements, each respondent emphasized on different practices in some cases with overlaps.

When summarizing the findings of literature review and the case studies, it was obvious that there are issues in existing WPD arrangements of physical layouts in public office building in Sri Lanka. Further, the employee satisfaction level of existing WPD arrangements of physical layout were identified during the case studies.

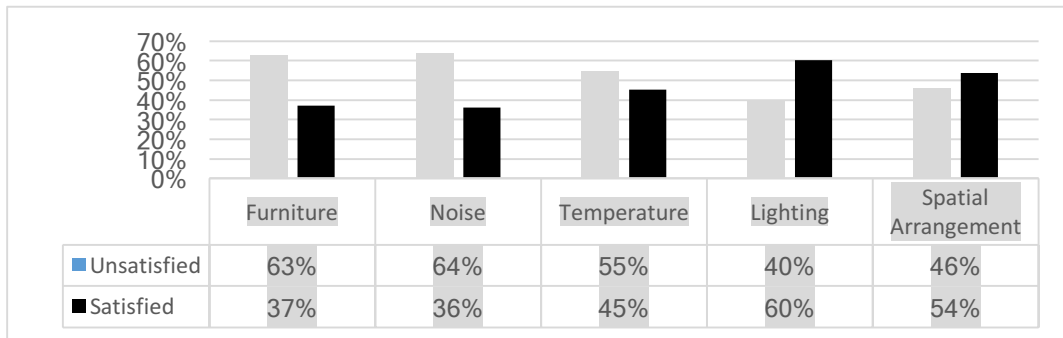


Figure 1: Overall Employee Satisfaction level

As depicted in Figure 1, the employee satisfaction on noise level is 36% which validates the managers' views on poor noise level, such as loud background noise especially in public office day and machines and equipment in the workplace due to poor sound insulation procedure. As well as all the offices are arranged open office concepts excluding executive's cabins. For executive managers, every organization related to select cases used partition walls to prevent the excessive noise but those partition walls are not fully covered. Therefore, all of them which relating to all three cases are mentioned that they are not satisfied about their workplace noise level. This result indicates that those factors contribute for the employee dissatisfaction on WPD significantly. Considering the furniture arrangement, the overall satisfaction level is 37%, therefore the factors which contributing for poor furniture arrangement such as poor chairs, no adequate desks and cupboards are also contribute significantly for the employee dissatisfaction on WPD. The satisfaction on temperature level indicates as 45%, where factors like adequate ventilation again contribute significantly for the employee dissatisfaction. However, lighting and special arrangement indicate higher satisfaction level comparing with the noise, furniture and temperature satisfaction levels. As Figure depicted lighting achieved 60% of employee satisfaction level. This makes the reasons for poor lighting level such as day light requirements not much significant. Similarly, special arrangement achieved 54% of employee satisfaction level where factors like separate and adequate space for relaxation facilities, separate reception and waiting area and separate common desk for emergency activities are not much significant. According to the findings of case studies, various workplace arrangements issues prevail in public offices in Sri Lanka. Identified issues are briefed in Table 1.

Table 1: Identified Issues of Workplace Arrangements

Factors	Identified Issues		
	Case A	Case B	Case C
Accessibility (access to the nature view)	No Disability access No sufficient space for corridors pathways No facilities to access the nature in free time	Walkways, corridors are used for temporary storage Block emergency exits No facilities to access the nature in free time	Corridors are used for temporary storage No facilities to access the nature in free time
Comfort			
Thermal comfort	Too cold in the office	High temperature within an office High humidity can create a warm atmosphere	Some areas are too cold in the office Some areas are too hot in the office
Lighting	Glare in a work area	Poor lighting level No sufficient numbers of light bulbs Very limited natural lighting use in day time	Glare in work area
Colours	Use dark colours for walls.	Use dark colours for walls.	Use dark colours for walls.
Noise	High background noise within the office	High background noise within the office	High background noise within the office

Factors		Identified Issues	
IAQ	Malfunctioning of air handling systems.	Malfunctioning of some fans.	Malfunctioning of air handling systems.
	Poor ventilation.	Poor ventilation. No fresh air (SBS)	Poor ventilation.
Furnishing	No adequate separate space for relaxation facilities	Limited personal space	limited number of benches provide for customers
	Limited personal space	No adequate separate space for relaxation facilities	Limited personal space
		No sufficient paper storage cupboards	No adequate separate space for relaxation facilities
Privacy	Upper level managers have high privacy with rooms and employees have a disturbance due to connection difficulties	No separate partition at least division wise	Half partitions are used to divide workstations
Flexibility	Lack of meeting rooms as employees have to waste lots of time	Zero flexibility facilities as limited space	Lack of meeting rooms as employees have to waste lots of time
			No control how workstation is set up and organized to meet their variety of tasks they perform

4.2. FINDINGS OF EXPERT SURVEY

All these respondents agreed that WPD concept plays an important role in an office building. R3 and R4 agreed that “if the office is an appealing place, physically as well as mentally, then only the management can get a productive workforce”. As mentioned by the R2 “the person who are working in the workplace more than 08 hours, he or she must be physically comfortable required for doing work correctly and quickly”. According to the R1 expert opinion, “due to lack of space, both over utilization and underutilization cause less productivity. Overutilization may increase the crowd, whereas the underutilization may generate lesser revenue per square feet”. Hence it has directly affected the productivity.

However, main categories of workplace environmental factors in an office building are identified in the literature synthesis as follows and gathered data from interviews disclose the importance and strategies carried out under the following categories.

- Accessibility
- Comfort Level
 - Ergonomics
 - Lighting
 - Colours
 - Noise and Aquatics
 - IAQ
 - Furnishing
- Privacy
- Flexibility

All respondents agreed that workplace environmental factors, including Accessibility, Comfort Level, Privacy, and Flexibility are directly impacted to the worker productivity. According to the empirical data revealed that Flexible workplace place will change either based on the user requirements or organizational requirement. Further observed to “Flexible concept and taking actions to mitigate space wastage in office workstations by adhering to practical scenarios which adds value to the worker productivity”. All the respondents clearly mentioned that enhanced staff productivity due to the improved internal environment and improved efficiency of energy consumption are the main reasons for that. When considering gathered data on flexible approach for physical layout of workplace, today in every workplace there is more concern on flexible arrangement due to

enhanced productivity, improved efficiency and cost effectiveness. When it comes to flexible WPD strategies, they explained that “before set the workplace strategy, it is important to identify the challenges the company faces, factors driving its success and the forces determining decisions”. After that, easily the designer can recognize strategies which are help resolving the workplace issues and achieve better business results. Further, Table 2 findings the flexible workplace designing strategies according to the existing workplace arrangement issues in the Case study`s findings.

Table 2: Flexible Workplace Designing Strategies

Factor	Remedies/ Strategies
Thermal comfort and temperature	Provide zoned temperature controls Individual controls in each enclosed space such as offices, conference rooms, etc. Provide open able windows. Close drapes, blinds and shades to keep the sun's rays out of the building during the warmer periods of the day Regulate air conditioning for temperature and humidity Avoid locating workstations directly in front of or below air conditioning outlets Control direct sunlight (radiant heat) with blinds, louvers and window treatments (apply sun control films)
Access to Nature, views and Daylight	Finding a way to introduce opening to the environment and to get day light in whenever possible Give nice views to shared spaces Maximize the daylight in to the building
Color	Identify suitable colours for various types of work and mental status Use appropriate colours to appropriate spaces.
Noise control	Provide individual headsets Use a layout which separates noise generating activities Isolate noisy equipment such as printers or photocopiers by placing them in separate rooms Use sound-absorbent materials, including suitable floor coverings, wall panels, ceiling panels and dividing screens
Human factors and Ergonomics	Provide flexible furniture Provide footrest
Indoor Air Quality	Add plants to the office to help clean the air Avoid toxic carpets/paints and etc.
Furniture Arrangement	Provide proper divisions by using tress or some natural barriers. It should have a supportive backrest that is adjustable in height, angle and depth. Storage facilities such as lockers, filing cabinets, and shelves need to be locating on the border of a walkway

However, all explained that “flexible workplace arrangements are practicing in the public office sector in an ad-hoc manner which they have derived, would limit the real benefits connected to the strategies”. Therefore, promoting flexible workplace arrangement strategies heavily affected to enhance productivity. The key findings of the research are summarised under this section in order to set up conclusions and recommendations.

Based on the findings of the study, a framework was developed to promoting flexible workplace to enhance productivity of office worker (refer Figure 2).

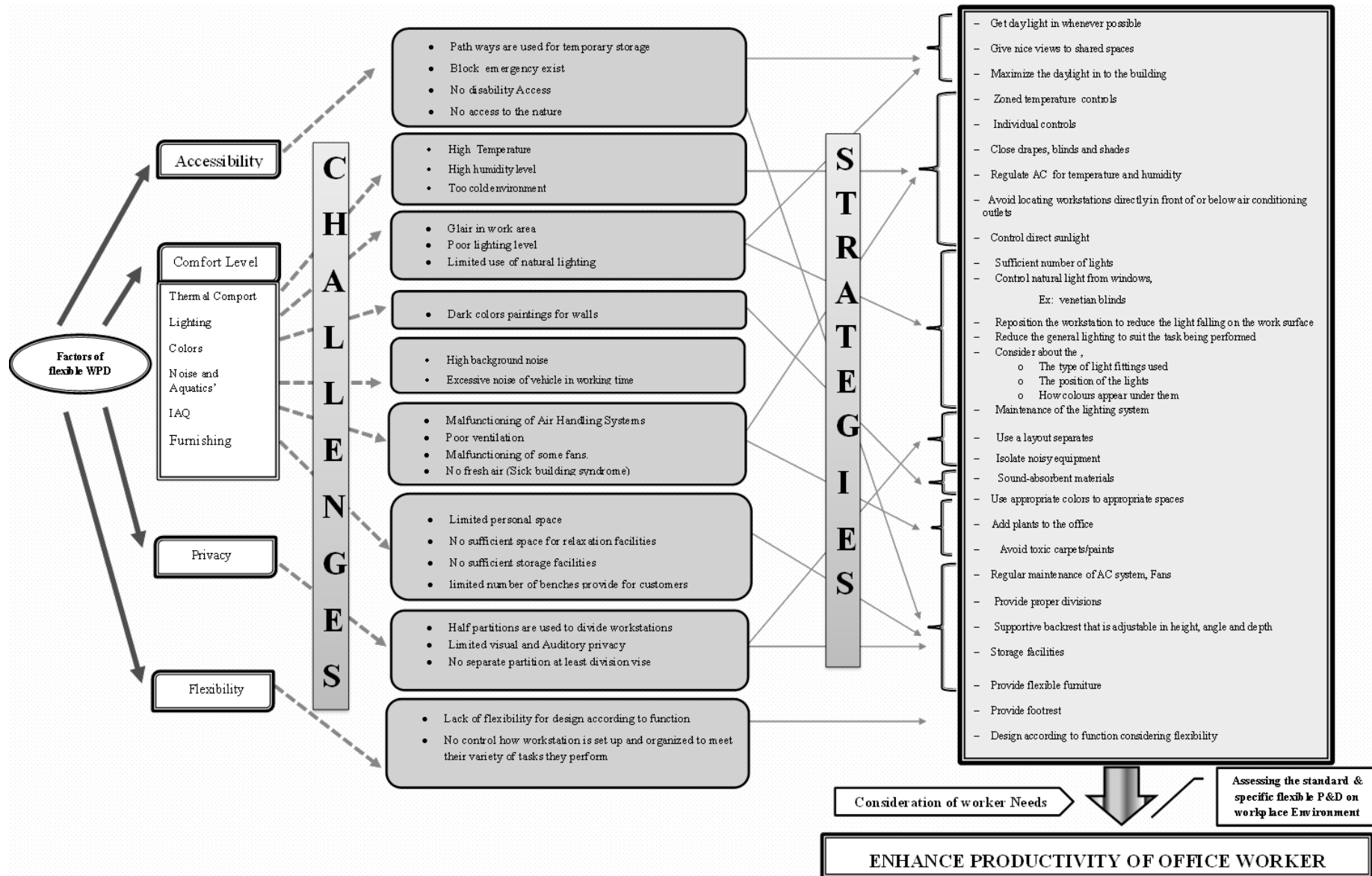


Figure 2: Developed Framework for Promoting Flexible Workplace to Enhance Productivity of Office Worker

5. CONCLUSIONS

The literature revealed that the focusing on the flexible workplace design concept in the office building and basic factors of flexible workplace which affect the productivity of office worker. Through the semi structured interview and employee questionnaire of the selected cases initiated that the existing workplace practices and the challenges that they faced due to the inappropriate physical layout of arrangements under every WPD factors.

Empirical results suggest that workplace physical environment issues including High Temperature, Glair in the work area, Poor lighting level, Limited use of natural lighting, Dark colour paintings for walls, High background noise and Poor ventilation are some identified issues from case study findings. Expert survey findings evidenced how to mitigate recognized challenges in the current office workplace environment. All respondents explained that flexible workplace arrangements are practicing in the public office sector in an ad-hoc manner which they have derived, would limit the real benefits connected to the strategies. Further, findings were revealed that developing a flexible workplace approach frame work, workplace physical layout design has common issues and strategies that have to overcome such issues. Based on the findings, a framework was developed for promoting flexible workplace approach to enhance worker productivity in Sri Lankan Public office sector.

Findings indicate that a significant impact of flexible WPD in public office building on worker productivity. First and foremost, it is necessary to emphasize that, the developed flexible WPD framework is the basis for most of the recommendations to achieve better productivity from workers. Initially, it is recommended to get the assistance of the developed framework to recognize the most appropriate strategies. This research adds to the knowledge of Facilities Mangers as well as other parties who are interested in designing field by presenting a framework related to enhance the worker productivity.

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