

A five-year profile of employee satisfaction for UK local government buildings

Xiaohong Li^{1*}, Ilfryn Price², Elizabeth Clark³

¹Sheffield Business School, Sheffield Hallam University, Sheffield, UK, x.li@shu.ac.uk

^{2,3}Sheffield Business School, Sheffield Hallam University, Sheffield, UK,
i.price@shu.ac.uk, e.clark@shu.ac.uk

* Corresponding author

WORKING PAPER

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A substantial five-year database, totalling over 20,000 responses across more than four hundred UK local government office buildings, is used to analyse employee satisfaction towards their work environment. Within this database, twenty-seven employee satisfaction attributes have been collected, for different sets of individuals and buildings, by an annual online survey for five years. The collective views of these responses in each of those years have been compared. The results have been strikingly consistent. The problematic areas are persistently the same. They appear to be the control of heating and ventilation and the need for, and ability to use, quiet areas for concentration, followed by document storage facilities, provision of meeting rooms, car parking facilities, and other personal needs related facilities, such as toilets and kitchen facilities. These areas are important concerns which need to be brought to the attention of local authorities and should not be neglected by decision makers. The findings by the comparison should also stimulate the proposals of improvement initiatives. This five-year profile provides a baseline against which the future investigations can be compared in the same sector. This study also provides an analytic method for performing other satisfaction related investigations.

Keywords: employee satisfaction, work environment, local government buildings, UK

Introduction

For more than two decades, the UK Central Government has urged Local Authorities to improve the effectiveness and efficiency of their built estate (Audit Commission 1988, 2000; White 2011). Even though the current Government has announced the abolition of the Commission, it continues to advocate reduction in the government estate as an area for achieving cost saving and capital release. The latest target is 8m² net per full-time equivalent (FTE) staff (Cabinet Office, 2011); however no occupant satisfaction level is associated with it. Few authorities have yet reached this target in practice, even though research shows it can be done without compromising the level of employee satisfaction (Price and Clark, 2009). The same period has seen a rise internationally of surveys of occupant satisfaction. The findings based on these surveys mainly focus on a single year results, hence the lack of comparison among different years. A comparison among a number of years can provide a baseline, if the results are consistent, against which individual buildings and offices in the same sector and other sectors can be compared. We are not aware of such a public benchmark being previously published. This study employs a large database of over 20,000 responses across five survey years on employee work environmental satisfaction based on the UK local authority buildings. It aims to provide such a baseline for this sector and also an analytic method which can be applied to other sectors.

More generally cost reductions and continuous improvement in efficiency of operations have been a constant challenge for public sector management (Curristine, et al, 2007). Local government management in the UK is no exception. Decisions in order to achieve cost saving have been commonly made to the reduction of the number of workforce hence salary saving without giving sufficient effort and consideration to operational improvements in all relevant areas. From the operations management point of view, reducing workforce to achieve cost reduction should be the last option, only if an organisation has no other choices but reducing its service volume. The decisions on cost saving should be made by improving efficiency of all relevant aspects of operations.

The costs associated with physical assets including office buildings can be significant and there are many possible ways to make improvements. Many decisions relating to investment in these buildings including building new ones and refurbishing old ones cannot be reversed easily and have a long-term impact. Factors which constitute a well-designed work environment are worth studying. An improved work environment, such as improved ability for concentration, better lighting and temperature, reduced noise level, and better air quality, has positively impacted on employee wellbeing and job satisfaction (Oldham and Brass, 1979; Sundstrom, et al, 1980; Carlopio, 1996, Roelofsen, 2002, Wyon, 2004, Lee and Brand, 2005, Vischer, 2007, Newsham et al, 2009; Thomas, 2010; Knight and Haslam, 2010). Improving these factors can further impact on productivity and business performance positively (e.g. Roelofsen, 2002; Vischer, 2007; Thomas, 2010).

These studies all emphasise the importance of improving indoor environmental quality. In particular, a range of environmental variables from overall comfort, temperature, lighting and air quality to the perceived productivity and employee wellbeing have been explored by Thomas (2010). That study highlighted the importance of increased fresh air, daylight, glare control, access to views, and noise management to achieving a higher level of occupant satisfaction towards their work environment. It also revealed a highly positive correlation (0.804) between overall comfort and the perceived productivity. This indicates how important an improved indoor office environment to the

enhancement of individual job performance. Simply changing lighting and acoustics in a post office had improved productivity by eight per cent (Roelofsen, 2002). The use of state of art technology, the ability to control climate, and storage space and quiet space that can be personalised would greatly boost productivity, which could be over seventy per cent based on a survey results (Barber, 2001).

Besides these physical environmental aspects, some of which contribute to the level of concentration at work, the ability of concentration and privacy are crucial considerations in the work environment design (Sundstrom, et al, 1980, Oldham and Brass, 1979). This is particularly the case in an open-plan office, where the improved ability of employees to concentrate at work contributed positively to their work environment satisfaction and job satisfaction (Oldham and Brass, 1979).

In addition, other features relating to a building which create a part of the work environment, such as external views, windows, bathroom facilities have also been explored in studies concerning with work environment improvement (Newsham et al., 2009, Moezzi and Goins, 2011). These studies indicate that many areas in the tangible, physical work environment can be considered for improvements¹.

Workspace design is much more complicated than just simply dealing with changes in temperature, lighting and acoustics aspects. The twelve workspace design aspects have been used by Schwede, et al (2008). These aspects include workplace layout, size of personal workspace, personal work surface area, usability of furniture, flexibility of furniture, workspace storage, meeting rooms, shared equipment and social spaces, suppression of noise, visual disturbance, and access to privacy. Work environment studies concern with the design of workspace and other relevant areas, and their improvements. The other relevant areas can be office condition, facilities for work and for personal needs at work, and customer reception. Most of these studies reviewed have considered only a few of these aspects, but not all. All these studies have used a single survey data rather than applying a longitudinal analysis across the number of survey years. Most of these studies focus on the identification of relationships between some factors relating to work environment and an area concerning satisfaction, such as employee environmental satisfaction or job satisfaction, and productivity. Except for the recent study by Moezzi and Goins (2011), revealing problematic areas relating to work environment for future improvement have not been paid sufficient attention by the studies in this area.

Problems associated with work environment can remain and are often not paid much attention. These areas can be simply classified as areas which need relatively significant level of investment for improvement and hence little can be done. Limited exploration has been given to key office environmental aspects on which an organisation should focus to improve their employee environment satisfaction (Lee, 2006). It is particularly true under the current economic conditions where limited resources for developing and updating office buildings are available. This is applicable for the improvement of the majority of local authorities' buildings. Not all the improvements required for office environment improvements need substantial funding. Long-term costing should be applied rather than short-term consideration. Steen, et al (2005) pointed out the presumption that the availability of the necessary knowledge is needed to create useful office buildings. They emphasised the need for revealing, noticing and discussing relevant aspects which are needed to create the necessary knowledge for such important strategic decisions for organisations (Kampschroer, et al, 2007).

This paper recognises the importance of employee work environment and its contribution to improvement in efficiency management, particularly for service providers in the public sector. A five-year employee environmental satisfaction database based on UK local governmental buildings provide a good opportunity to apply a comparative method to identify some long-term problematic areas relating to work environment. Revealing persistent problematic areas is a first step towards possible improvement. The findings should be valuable at the strategic decision making level regarding long-term government building improvements and investment. The simple comparative method used in this study could also be valuable for other studies of satisfaction.

The database and research method

This research uses data from an ongoing survey offered to employees located in UK local government office buildings. The survey covers employee office environmental satisfaction factors and building information. The survey instruments, twenty-seven employee satisfaction attributes, were chosen following factor analysis of two prior assessments of the perceived importance of and satisfaction with a longer list of attributes (Clark et al, 2004). In 2003, a combined instrument was tested. It had been deployed as a paper-based survey for two years then online from 2006. The average satisfaction proved repeatable year on year and was used in other research analyses (Pinder and Price, 2005, Price and Clark, 2009) to screen the relatively best performed buildings. The data were not examined by the leading author for this paper which reports a new longitudinal comparative study across five survey years using all individual satisfaction responses.

This study uses data from 2006 to 2010 which contain all the online survey results up to the most recent year. The survey has been conducted in a self-participating manner and the annual sample size therefore varies from year to year. In each survey year, a different set of individuals and buildings may be involved, where some individuals responded every year and some responded one or some of these five years. In each case the survey address was emailed to all occupants of a particular building. The data collected are therefore random apart from a potential bias towards accepting an invitation to participate. The 2006 survey had the smallest response of 1,992 and covered twenty-six attributes instead of twenty-seven for the other survey years. The surveys from 2007 to 2010 had collected more than 4,000 responses on each survey year, with the largest sample of 5,009 responses in 2009 across fifty-eight local government buildings in the UK. The survey in 2006 did not collect the attribute of 'Speed in which Repairs and Maintenance are carried out'. The full list of twenty-seven attributes is given in table 1. These attributes are measured by a five-point scale from 1 for 'very dissatisfied' to 5 for 'very satisfied'.

For convenience of interpretation and discussion, five categories are applied to these twenty-seven attributes: workspace, condition of the office, provision of facilities needed for work, provision of facilities needed for personal needs, and customer reception. The 'workspace' category also includes 'flexible space' and 'environmental services' which are directly related to an employee's workspace. Therefore, provision of quiet areas, ability to use quiet areas, and provision of meeting rooms are classified into 'workspace'. Employees' control of heating, lighting and ventilation at their offices is part of environmental services which directly impact on their comfort relating to their workspace. The classifications of other attributes in the other four categories are much more straightforward to follow in terms of their definitions and should need no further

explanations. An attribute in a category represents a different aspect defining the satisfaction level of this category. No average of these attributes in a category is used in the analysis in this study. An individual attribute instead of a single category is explored. The information on category is only used for the assistance of interpreting and understanding of the analysis results.

Categories	Attribute number	Employee Office Environmental Satisfaction Attributes
<u>Category 1</u> Workspace (including flexible space and environmental services)	1	Your personal space
	2	Provision of meeting rooms
	3	Ability to use quiet areas
	12*	Provision of quiet areas
	4	Document storage facilities
	5	Your control over heating
	6	Your control over lighting
	7	Your control over ventilation
<u>Category 2</u> Condition of the office	8	Levels of cleanliness
	9	Frequency of rubbish disposal
	10	General appearance of your office
	11	Speed in which Repairs and Maintenance are carried out
<u>Category 3</u> Provision of facilities needed for work	13	Your overall personal security
	14	Overall fire safety
	15	Mail room service
	16	Telephone system
	17	Photocopiers
	26*	Facilities management helpdesk/telephone number
<u>Category 4</u> Provision of facilities needed for personal needs	18	Toilet facilities
	19	Kitchen facilities
	20	Catering facilities
	21	Car parking
	22	Bicycle storage facilities
	27*	Changing facilities for staff cycling/jogging to work
<u>Category 5</u> Customer reception	23	Ambience of the customer reception
	24	Location of the customer reception
	25	Accessibility of the customer reception

* In order to keep the same numbers used in the data file.

Table 1: Employee Satisfaction Attributes Surveyed and related Categories

In order to make comparison of collective views across different years, percentages of the number of responses for each point of the five-point scale over the total responses are calculated for each survey year. This has been conducted for all the twenty-seven satisfaction attributes individually. For each attribute, the cumulative percentage for values of 1 and 2, which represent the overall dissatisfied percentage, including both 'very dissatisfied' and 'dissatisfied' percentages, has been calculated for each survey year. The same is applied to values of 4 and 5, which represent the overall satisfied percentage, including both 'satisfied' and 'very satisfied' percentages. The line graphs are used to compare these percentages of the twenty-seven attributes across these five years. The order of the attributes on the graph simply follows the order of the survey design. A different order can be used without affecting the results. Ideally, a bar chart should be used for a set of variables without a particular time order or logical order; however, it would not easily reveal the patterns for the number of years involved. Hence a line graph is used to make the comparison for either the overall satisfied percentages or the overall dissatisfied percentages. The line direction connecting two attributes has no meaning for interpretations. The patterns of these five years are plotted on a single graph for comparative purposes. One graph is for the positive side of responses (values of 4 and 5) and the other one for the negative side of responses (values of 1 and 2). The problematic areas associated with employee work environment can be revealed. The problem which is persistent either over the five-year period or for some of the years can be identified. The positive side of the story regarding work environment regarding these local authorities' buildings should also be revealed.

In addition, the line graph is also applied to the percentage of responses with the value of 3 over the total responses, which represent the middle ground view across these twenty-seven attributes. It is useful to identify the attributes which the employees either think irrelevant to them or may be just 'acceptable' on the collective views.

The method of applying a line graph using percentage of collective views relating to either positive, negative, or neutral responses is a simple way to make a comparison for a study concerning satisfaction levels. The visual comparison easily identifies persistent problematic areas, non-problematic areas, or areas which have little concern to respondents. Positive areas should continue into the long-term future and problematic areas identified should be brought to the attention of the management team for possible future improvement. Some issues might seem obvious to many observers. However, the identification of problematic areas across the number of years using a large database emphasises and highlights the issues to the management team. Hence the initiatives for improvements can be put forwarded and implemented.

The five-year comparison and analysis

Dissatisfaction

As described in the database and research method section, the line graph is used for comparing the results for these five survey years. Figure 1 provides the comparison of all collective votes across these five survey years regarding the cumulative percentage of the number of 'very dissatisfied' and 'dissatisfied' votes (values of 1 and 2) over the total responses, for these twenty-seven attributes.

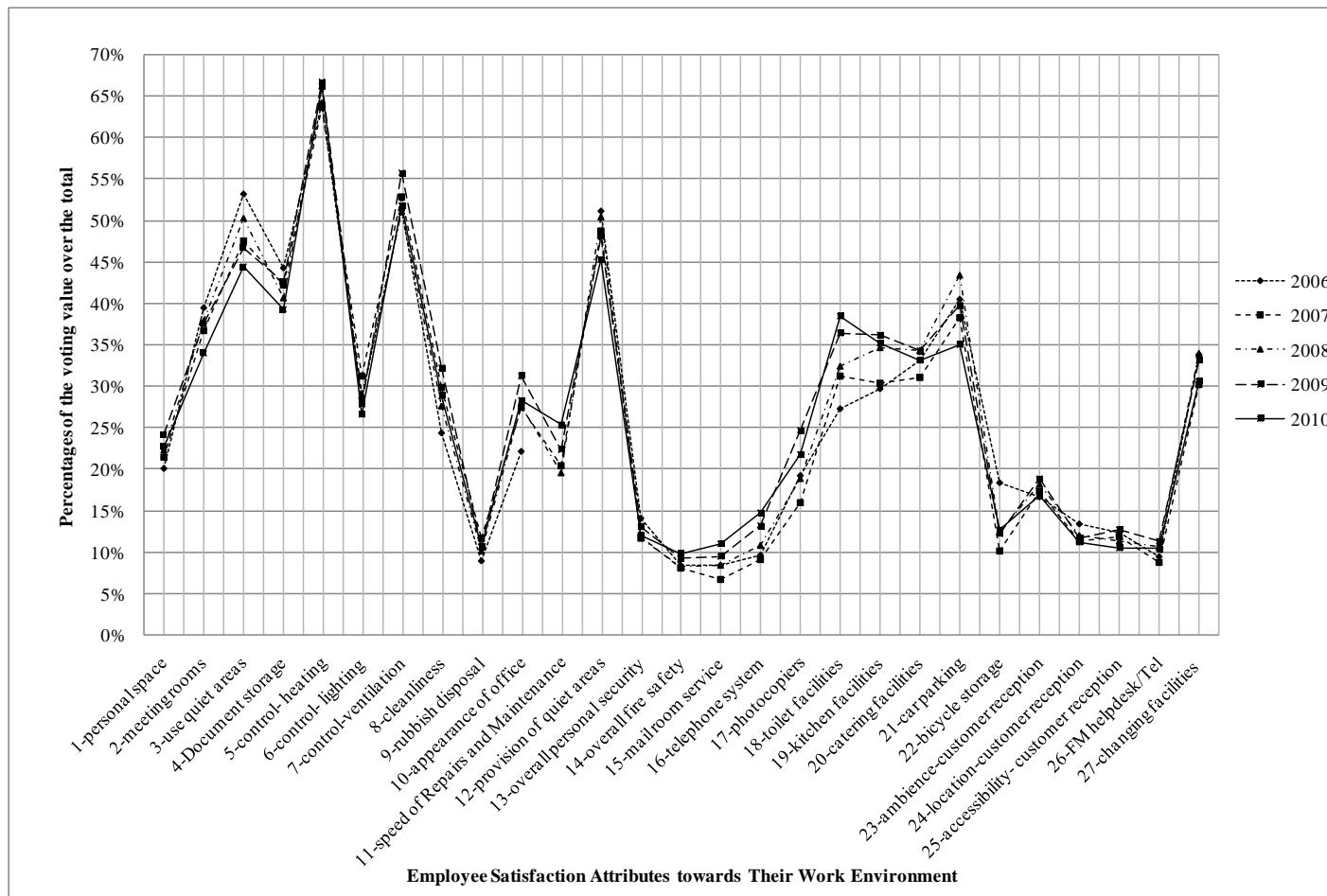


Figure 1 Comparison of the cumulative percentage of 'very dissatisfied' and 'dissatisfied' employees towards their work environment over the total responses, across the twenty seven attributes, for UK local government buildings among the survey years of 2006 to 2010

Two messages are clearly visible. The first is the striking consistency of this percentage relating to these attributes across these five years. Regarding this cumulative percentage of 'very dissatisfied' and 'dissatisfied', most of these attributes have a less than five percent differential across these five years. A few attributes have small variations, but no more than twelve per cent. The largest variation over these five years is employees' satisfaction level regarding toilet facilities. The second is that a few attributes consistently show a very high cumulative percentage of 'very dissatisfied' and 'dissatisfied'. The observation raises two questions: 'are the management team aware of these consistently low satisfaction areas relating to work environment?' and if so, 'why these problematic areas have not been dealt with for such a long period of time?'. The consistency of the results also serves as a counterpoint to any argument that the problem is just in one building.

There is no particular rule for the threshold level of selecting problematic attributes in satisfaction survey studies. However, by examining the patterns in Figure 1, there appears to be two groups. The first has cumulative dissatisfaction above fifty per cent, reaching this figure in at least one survey year. The second has cumulative dissatisfaction that is generally between thirty-three (one-third) and fifty per cent, reaching above thirty-three per cent in at least one survey year. The year on year consistency justifies, it is argued, such a grouping.

The first group, the severely dissatisfied, includes four attributes. Using the defined terms in the survey and ordered from the highest percentage to the lowest, they are:

- Your control of heating
- Your control of ventilation
- Ability of use quiet areas
- Provision of quiet areas

The control of heating and ventilation appear the two most problematic areas, which are related. Clearly the control of lighting has not been an issue based on the collective votes. These can be easily understood that for most of the buildings light switches are under control of the users, but normally not heating and ventilation. All five-year surveys consistently revealed more than fifty per cent of responses were not happy about these two work environment aspects, which is very significant. Air quality by the internal air-flow or air-conditioning system is normally poor for most of the office buildings regardless of age of the building, if no outside air can be directly accessed. Non-opening windows become a common design feature for most of office buildings and hence no directly access to fresh air. The problems associated with heating, or temperature and ventilations, or air quality, and in some cases also including lighting have been reported in the literature for different types of office buildings (Newsham et al., 2009; Thomas, 2010). Work environment designs or improvements with the consideration of these aspects positively impact on work productivity and occupants' wellbeing (Newsham et al., 2009; Thomas, 2010).

The local government office employees who provide services to local citizens are classified as knowledge workers. Their work requires a degree and time span of concentration in order to be productive. Concentration and productivity in a quiet office environment is much more easily achieved than in a 'noisy' office. Using quiet areas while available to do a part of the job requiring concentration is an alternative to a quiet office. This provides flexible space for employees. These surveys however revealed this had not been satisfactory to these employees over these five years. A significant low

satisfaction level is associated with 'the ability of use quiet areas' or 'the provision of quiet areas', which are highly related. The debate about quiet areas in large offices is complicated (Oldham and Brass, 1979; Newsham et al., 2009) and involves design, acoustics, visual privacy or its absence, and culture, whether concentration is permitted. We are aware of it (Anon for review) and will not repeat it here. The key observation from this research is the strong baseline against which individual buildings and solutions can be assessed.

The second group has five attributes. Ordered from the highest to the lowest percentage overall for these five years, they are:

- Document storage facilities
- Car parking
- Provision of meeting rooms
- Toilet facilities
- Kitchen facilities

Three of these five attributes listed above fall into the category of facilities for personal needs at work: car parking, toilet facilities and kitchen facilities. The other two are workspace related features: document storage facilities and provision of meeting rooms. It might not be simply the number of meeting rooms or file storage cabinets or the size or quality of toilet or kitchen facilities. Some studies have reported that due to the design of open-plan offices, less document storage spaces are directly allocated to individuals to use and fewer rooms are available for meeting purposes (Newsham et al., 2009). Locations of toilets and/or kitchen facilities can also affect the satisfaction level. Further case investigations are necessary to fully understand the detailed issues relating to these aspects. Improvements relating to these facilities in some buildings can be very limited in terms of increasing the number of these facilities or changing locations.

Satisfaction

Whilst problematic areas need to be revealed and emphasised in order to bring the management team's attention for possible future improvement, good areas regarding these buildings should also be noticed. Figure 2 provides the comparison among these twenty-seven attributes on the cumulative percentage of the number of 'satisfied' and 'very satisfied' responses over the total responses for these five years.

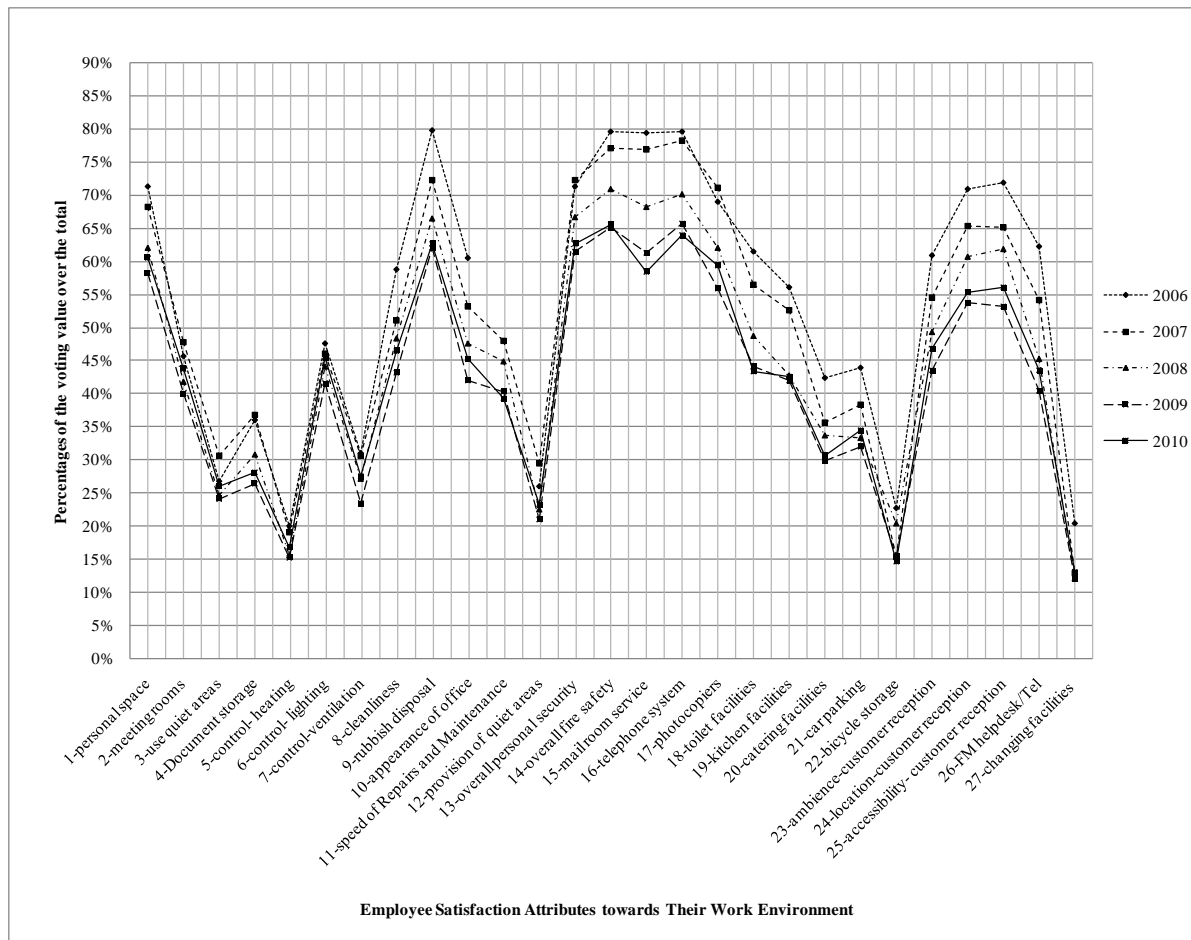


Figure 2 Comparison of the cumulative percentage of ‘very satisfied’ and ‘satisfied’ employees towards their work environment over the total responses, across the twenty seven attributes, for UK local government buildings among the survey years of 2006 to 2010

The cumulative percentages of 'satisfied' and 'very satisfied' responses over the total of these twenty-seven attributes are also consistent across these five years, but not as converging as those percentages concerning dissatisfaction responses. The differences among these five years are no more than twenty per cent by considering all twenty-seven attributes and much less for some attributes than others (see Figure 2). However, the patterns of these five years are very similar. Therefore, some attributes have been consistently considered as fairly satisfactory areas by employees.

Unlike the rule used for identifying problematic areas, it needs the majority to be satisfied before an area can be viewed as 'problem free'. Therefore, applying the fifty per cent as the threshold for all these five years, the following eight attributes, using the survey terminologies, represent good areas relating to the work environment for these UK local government buildings. Ordered from the highest percentage overall to the lowest, they are:

- Frequency of rubbish disposal
- Overall fire safety
- Mail room service
- Telephone system
- Your personal space
- Photocopies
- Location of customer reception
- Accessibility of customer reception

If applying the greater than fifty per cent rule for at least one survey year, the list can be extended to the following attributes:

- Ambience of customer reception
- Facilities management helpdesk/telephone number
- General appearance of your office
- Levels of cleanliness

By re-visiting the five categories given in table 1, all attributes in category 3 which is 'provision of facilities needed for work' and in category 5, which is 'customer reception' were viewed as 'satisfied' and 'very satisfied' by the majority of employees working in these UK local government buildings. Except for 'speed in which repairs and maintenance are carried out', the three other attributes in category 2 which is 'condition of the office' were also viewed as 'satisfied' and 'very satisfied' by the majority of employees.

Neutral

Figure 3 provides the comparison of these twenty-seven attributes among these five years regarding the percentage of 'neutral' responses over the total. If high percentages are associated with many of these twenty-seven attributes, the instruments designed need to be re-considered. This is not the case in Figure 3.

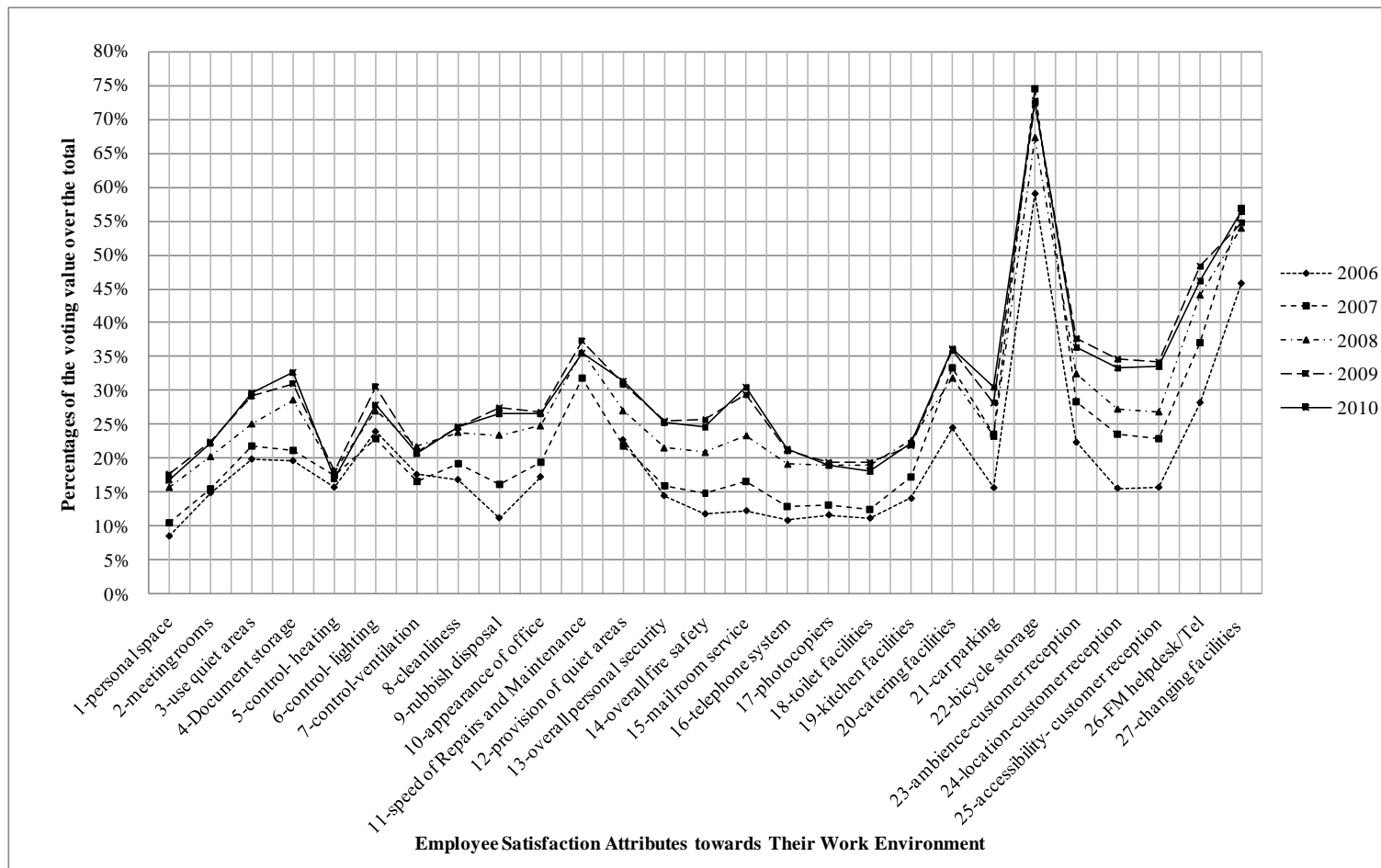


Figure 3 Comparison of the percentage of 'neutral' votes of employee satisfaction towards their work environment over the total responses, across the twenty seven attributes, for UK local government buildings among the survey years of 2006 to 2010

A significantly high number of respondents considered 'bicycle storage facilities' and 'changing room facilities' as either 'dissatisfied/very dissatisfied' or 'satisfied/very satisfied'. They are followed by 'facilities management helpdesk/telephone number' for some of the survey years. It is possible not many employees actually commute to work by bicycles or jog to work and therefore no need for changing facilities. It is also quite probable that the majority of employees do not use the facilities management help-line number.

In summary, the problematic areas were mainly relating to 'workspace' and 'provision of facilities needed for personal needs' at work. The other three categories have more positive responses than negative ones in general over this five-year period. The work environment design or re-design in refurbishment work for the local government buildings need to consider these two dimensions particularly in the future to improve employee satisfaction experiences towards their work environment. As mentioned before, some attributes, particularly for those relating to facilities for personal needs at work require further case explorations due to multiple features associated with these attributes. In order to make appropriate improvements, the exact problems associated with these facilities need to be identified.

Conclusion and further research

This study has used five separate and substantial surveys to analyse employees' environmental satisfaction factors in UK local government buildings. Twenty-seven attributes covering five categories relating to work environment are included in this database. The categories include workspace, the condition of office, facilities needed for work, facilities needed for personal needs at work, and customer reception. The five year comparative analysis provides an amazingly consistent picture over these twenty-seven attributes. The problematic areas fall mainly into workspace and facilities needed for personal needs at work. In detail, the four most problematic areas are the control of heating, the control of ventilation, the ability of use quiet areas, and the provision of quiet areas. They are all classified as workspace design related factors. The other problematic areas but less severe than the above four are: document storage facilities, car parking, meeting rooms, and toilet and kitchen facilities. The comparative analysis also revealed that most of employees have been satisfied with facilities needed for work, customer reception, and the office condition.

This simple comparative approach proves effective to this type of study, which could be used for other similar studies. The simple line graph using the cumulative percentage of the 'very dissatisfied' and 'dissatisfied' across the survey years has revealed the consistently problematic areas relating to employee work environment in this study. The results raise two questions. The first is 'is the local governments aware of these problematic areas relating to the work environment?'. The second asks 'if so, why have these problematic areas not been dealt with.'. Further research is needed to explore some buildings in a greater detail in order to identify possible improvement areas and propose initiatives. Another perspective is that the highest satisfaction is with factors under the control of operational facilities management whereas the highest overall dissatisfaction results from attributes that blend issues of building design and organisational culture.

This study provides baseline charts to illustrate the current situation of employee work environmental satisfaction levels, which represent the past five years with very limited changes. These graphs are valuable in that departures from the overall picture can now

be examined via particular case studies. Local government buildings can be compared with other sectors, work that is now in progress. They also highlight general building issues. However, it needs to be recognised that without exploring improvement initiatives and implementable actions, the improvements are just our imaginations or wishes. Without action from the State of the Office (Nathan and Doyle, 2002) or the Estate (Cabinet Office, 2011), this will not change for the better.

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Endnotes

ⁱ We are aware of the importance of the less tangible psycho-social environment (e.g. Price, 2007; Haynes, 2008) but it is outside the scope of this particular study



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LI, Xiaohong <<http://orcid.org/0000-0001-8148-7348>>, PRICE, Ilfryn and CLARK, Liz

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