

Office design for the multi-generational knowledge workforce

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Office Design for the Multi-Generational Knowledge Workforce

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Abstract

Purpose: The aim of this paper is to evaluate the impact the workplace can have on knowledge working for a multi-generational workforce.

Design/Methodology/Approach: A case study analysis is undertaken of Leeds City Council Workplace in the UK.

Findings: The findings from the study show that in the context of LCC there are some key differences between the generations regarding knowledge working preferences for formal/informal meeting spaces. In other aspects, such as knowledge sharing, the generations appear to agree on key aspects such as mentoring and team based working environments.

Practical Implications: Corporate real estate managers can use the research findings to assist them in providing a range of workplace settings to enhance multi-generational interaction.

Originality/Value: This paper fills a gap in current research by evaluating workplace preferences based on generational differences.

Key words: - Multi-generational knowledge workforce, knowledge work, knowledge transfer, workspace design, corporate real estate.

Introduction

The multi-generational workforce is not a new phenomenon; different generations have been working alongside one another for many centuries. However, workforce demographics are currently undergoing a period of change. "By 2020, close to half the adult population in the European Union will be over 50" (Vickers, 2005, p2). This, coupled with a multitude of other factors such as shortages in pension funds, increased age and disability discrimination legislation, and organisations' recognising the benefits of retaining 'knowledge capital' held by older workers (Smith, 2008) is resulting in a greater number of older workers prolonging retirement. However, with old age comes physical changes, and it is recognised that the workplace may need to adapt in order to cater for the older worker's needs (Smith, 2008).

It is not just the older generations who are influencing workplace design. The latest generation to enter the workforce, generation Y, are bringing with them new work styles, new technologies and new ways of interacting (Steelcase Inc, 2006). Organisations are recognising the benefits that this highly competitive generation bring to the table and so are designing workplaces that both attract and retain workers from this dynamic generation.

The advent of this highly diverse multi-generational workforce has posed a new set of questions for Corporate Real Estate professionals, HR managers and organisations alike (Hughes and Simoneaux, 2008, p32):

1. How do you effectively manage a workforce of diverse ages and expectations?
2. How do you design a workplace that performs for all ages?
3. How do you facilitate the transfer of huge stores of accumulated business knowledge from older to younger workers?

In order to study the trends of a multi-generational workforce and try and provide answers to these questions; first something common to all generations should be identified which can remain as the constant unit of analysis within the research (Collis and Hussey, 2003). This unit of analysis is knowledge work.

Knowledge work is work that requires a higher level of learning to be applied and knowledge workers are the fastest growing group of workers in developed countries

today (Vickers, 2005). The key aspect of knowledge work which is pivotal to the study is knowledge transfer.

Knowledge transfer is the exchange of knowledge between workers. This is vital to both collaboration and mentoring; where workers share information and ideas with one another through interaction; and where knowledge workers share their experiences, usually from experienced to less experienced staff. Organisations are recognising the vast quantity of knowledge that older workers have acquired, and the importance of passing this knowledge to the younger generations within the workforce (Steelcase Inc. 2009):

“Never before have younger generations been so poised to learn from their older colleagues. Supporting that exchange of knowledge before it is too late is essential to the future of many businesses.” (Steelcase Inc. 2009, p8)

The aim of this research, therefore, is to evaluate through a case study analysis; whether the multi-generational workforce require different work spaces to facilitate knowledge work and knowledge transfer.

Literature review

The advent of the multi-generational workforce has led to the development of research and theory regarding the characteristics and differences between the generations and how the workplace can be adapted to cater for the different generation's needs (Haynes, 2011). The multi-generational workforce can be classified as four distinct groupings:

Traditionalists: - Born between 1922 and 1945; also known as veterans, are characterised as being dedicated, stable and loyal, but also resistant to change and reserved.

Baby Boomers: - Born between 1946 and 1964; are characterised as being optimistic, team players and service driven. However, they are generalised to be technologically challenged and value their own space such as a private office.

Generation X: - Born between 1965 and 1978; are characterised as independent, self-reliant and entrepreneurial. They are adaptable, and comfortable with technology, but are also considered impatient and quick to criticise.

Generation Y: - Born between 1979 and 2000; also known as 'millennials'; are characterised as being confident, knowledge thirsty and technology savvy. They require instant feedback and constant guidance. They thrive in informal work environments.

Generation Y are the latest entrants to the workplace and whilst many of this generation could now be in their late twenties / early thirties, there is still relatively little research into this generation and their workplace preferences. However, Johnson Controls Global Workplace Solutions in collaboration with Haworth (a furniture manufacturer) and iDEA (design consultancy company), have undertaken a research project named OXYGENZ which aims to identify what organisations can do in order to attract this generation to their workplace and what the generation value in the workplace environment.

The main findings from the OXYGENZ report which are of importance to this research are summarised below (Puybaraud et al, 2010):

- Generation Y prioritise collaboration and interaction in the workplace. This should be supported through the provision of team spaces and break out spaces, which support both formal and informal collaborative engagement.
- Continued learning and development is very important to this generation.
- Generation Y place great importance on working in and among a team.
- Generation Y are a social and collaborative workforce.

These findings would suggest that these younger workers are keen to knowledge share and see obtaining knowledge and interacting with colleagues as a key part of the working environment. With this in mind; how can the workplace facilitate knowledge work and knowledge transfer between the generations?

A key piece of research into knowledge transfer is by Appel-Meulenbroek (2010), who undertook a case study into whether knowledge sharing activity could be influenced through building design. Interestingly, the study was only concerned in measuring

meetings or knowledge exchanges which occurred by coincidence or were intended but not scheduled; as meetings which were scheduled could not be determined as a product of the building layout.

The study recognised that there are two spatial behaviours that are responsible for these coincidental meetings; movement (around a building) and co presence (the number of people you can see from your desk) (Appel-Meulenbroek, 2010). The methodology Appel-Meulenbroek used to study the impact of building layout on these spatial behaviours included the use of spatial network analysis (the workings of which go far beyond the needs of this paper) and the use of log books for staff to record where both coincidental meetings and intentional but unscheduled meetings took place.

Appel-Meulenbroek (2010) found through her study that co-presence is the most important factor in building design in order to facilitate knowledge sharing:

“co-presence is the most important effect of a building on knowledge sharing. People in close proximity interact more, because they bump into each other when moving around the vicinity of their workspace.” (Appel-Meulenbroek, 2010, p192)

It would therefore appear that whether by intention or coincidence, open plan office design provides an ideal environment for knowledge sharing as through co-presence one can see what another is up to, which therefore “makes it easier to provide unquestioned help” (Appel-Meulenbroek, 2010, p201). This is also supported by Vickers (2005, p73) “Such knowledge of someone’s availability can be particularly useful to the younger worker seeking advice from a more experienced but apparently always busy colleague.”

Whether all forms of knowledge work, and all generations of knowledge worker are suited to the open plan environment is a valid question. For instance, open plan environments can prove quite distracting for knowledge work that requires concentration (Smith, 2008). Haynes (2008) does, however, recognise that office design does not have to be wholly open plan to enhance knowledge sharing and in fact, it would appear that other findings from Appel-Meulenbroek’s (2010) study can be explored to provide

knowledge sharing activity “To enhance interaction, whilst also ensuring minimum distraction, attention needs to be given to the office layout and provision of common interactive areas and quiet distraction free areas” (Haynes 2008, p300). Steelcase Inc. (2010) also recognises other work settings beside open plan office environments in which knowledge sharing can be encouraged:

“Down came the panels, in came impromptu meeting and team spaces along with technology for easier sharing of information – all to encourage the ongoing conversations vital to collaboration” (Steelcase Inc. 2010, p6)

Steelcase Inc. (2006) advise that trust is a key element to the sharing of knowledge and that building networks of trust within an organisation will facilitate the faster transference of knowledge and a greater quantity of knowledge. Steelcase (2006) suggest that in order to establish this network of trust, the workplace should provide social interaction for colleagues to meet and get to know one another. This theory would support Appel-Meulenbroek’s (2010) finding that knowledge sharing occurred at the coffee machine through coincidental meetings, which would be enhanced, the greater the network of trust within the workforce.

Appel-Meulenbroek’s (2010) study is a key piece of research into how building design can facilitate knowledge transfer. However, there is a need for further research and publications into why knowledge transfer can be enhanced by workplace design. Real estate is the second highest cost to businesses after labour (Appel-Meulenbroek, 2010), which is why more companies are concerned with getting better value for their money, or increased cost/benefit ratio. However, whilst knowledge sharing is now being recognised for the benefits it can provide, it is still studied comparatively less than employee productivity and employee satisfaction within the workplace environment (Appel-Meulenbroek, 2010).

One area in which organisations can benefit from the effects of knowledge transfer is increased innovation through creative collaboration (Steelcase Inc. 2010). Another form of knowledge transfer, which is of great relevance to this research, is guidance and mentoring (Smith, 2008). This has huge implications for the older and younger

knowledge worker and it is recognised that facilitating knowledge transfer between these generations, one of which is currently entering the workforce whilst the other is due to leave, is of increased importance to organisations today “In a knowledge economy, experience is a valuable asset, and organisations are becoming more aware of the effects of knowledge drain when they lose their most experienced employees” (Smith, 2008, p5).

In summary, organisations can benefit from knowledge transfer through increased productivity as a result of collaboration and through the retention of tacit knowledge or ‘knowledge capital’, which “resides in individuals, not institutions” (Vickers, 2005, p24), being passed from older to younger workers. The question which these papers and publications do not address, however, is whether the multi-generational workforce requires different workspaces to facilitate knowledge transfer. This paper will aim to address this research question through the use of case study analysis.

Method

The case study was undertaken in 2010 at Leeds City Council (LCC) in the UK. The study focused on a group of 63 knowledge workers undertaking ‘Changing the Workplace Initiative’; a pilot scheme implementing new ways of working practices within the workplace. The pilot ran for six months between November 2009 and April 2010 and following the completion of the pilot the participants continued to practice new ways of working. The pilot participants proved an ideal sample to study as they consisted of three different generations (generation Y, generation X and baby boomers) of varying experience and seniority within the Council Department.

The workplace initiative introduced flexible working arrangements within a range of different work place settings. Participants were provided with laptops and mobile phones and workspaces were transformed, providing participants with a number of different work environments:

- **Team based area** – Open plan setting providing workbenches for participants to dock laptops into. Workstations are provided on a 1:3 ratio and therefore are not

allocated to an individual. Workstations must be cleared after use. The team based area also provides participant lockers and file storage areas.



(Photo courtesy of Leeds City Council)

- **Quiet room** – Similar to the team based area but much smaller, providing only six docking stations where users must not talk amongst themselves and phone calls are prohibited. The quiet room is designed for work that requires concentration.



(Photo courtesy of Leeds City Council)

- **Hot desking area** – Similar to team based area but designed for use as a touch down area when users are just passing through the office or similarly as an overflow if the team based area is full.



(Photo courtesy of Leeds City Council)

- **Atrium** – The atrium provides a range of tables and seating to hold informal meetings with staff from within the Council only. The space also doubles as somewhere for employees to eat their lunch. There is a provision of both traditional meeting type tables with upright chairs, as well as more relaxed softer furnishings and benches. The atrium is overlooked by a balcony/walkway which links each side of the office building.



(Photo courtesy of Leeds City Council)

- **Bookable meeting rooms** – small meeting rooms which can be reserved for meetings.
- **Home/outside of office** – The provision of phones and laptops enables participants to work from home or outside of the office in libraries, cafes etc.
- **Kitchen, corridor, print room etc** – Whilst these spaces were not specifically designed for the pilot, as suggested by literature surrounding the topic, they may prove ideal spaces to facilitate knowledge transfer.

The knowledge work undertaken within these work settings, the impact of the workspace upon which was to be studied, was identified as follows:

- **Case work** – Work cases which are assigned to workers and for which they take responsibility for, usually linked to their area of expertise.
- **Mentoring** – Junior or trainee staff who work alongside experienced colleagues who mentor them through certain aspects of their case work.
- **Meetings** – Scheduled meetings between colleagues and teams where caseload and work related issues would be discussed. Unscheduled meetings such as meeting with a colleague to discuss a case on an ad-hoc or even coincidental basis.

In order to study whether the multi-generations preferred different work settings to undertake knowledge work and facilitate knowledge transfer, a questionnaire and focus group analysis was undertaken.

The first half of the questionnaire focused on where participants preferred to undertake certain types of work (based on the types of knowledge work identified above), for example “Where do you prefer to work if the work you are undertaking requires a high level of concentration?” The second half of the questionnaire focused on work settings participants felt best aided knowledge transfer, through questions such as “Where do you feel you interact with colleagues best?” For both sets of questions participants were given the option of choosing the work settings provided on the pilot scheme.

Through analysis of the different generation’s responses to the questionnaire, it was possible to determine on a quantitative basis whether different generations required different work settings to facilitate knowledge work and knowledge transfer. The questionnaire received a very high response rate of 86% with 53 responses. Of the 53 respondents, 50% were baby boomers, 36% were generation X and 14% were generation Y.

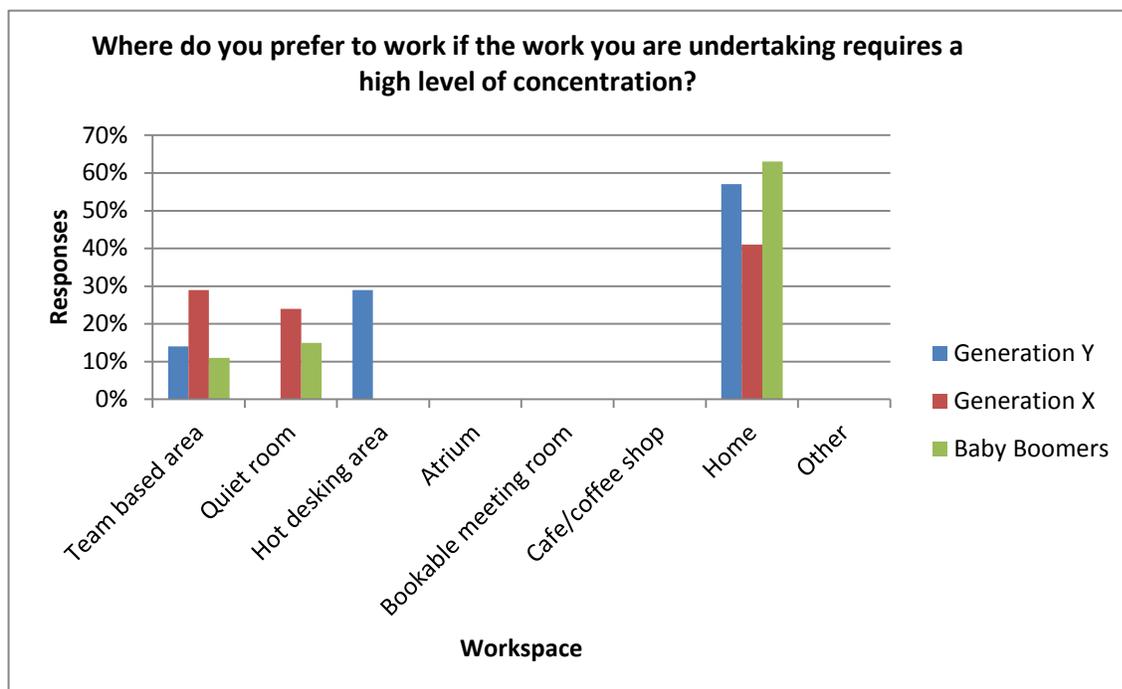
However, in order to obtain qualitative data, a focus group session was held with six participants from the pilot study (representing Gen Y, Gen X & Baby Boomers) in order to discuss the reasons why participants preferred certain work areas for certain aspects of knowledge work. Four topics were debated, those being; concentration; meetings; team based work/collaboration; and knowledge transfer. Analysis of the focus group

transcript and the results of the questionnaire provided a basis on which conclusions could be drawn on whether within the context of LCC; the multi generational knowledge workforce require different work spaces to facilitate knowledge work and knowledge transfer.

Results

Concentration

The responses from the questionnaire regarding work that requires concentration are outlined in figure 1.1 below:



(Figure 1.1)

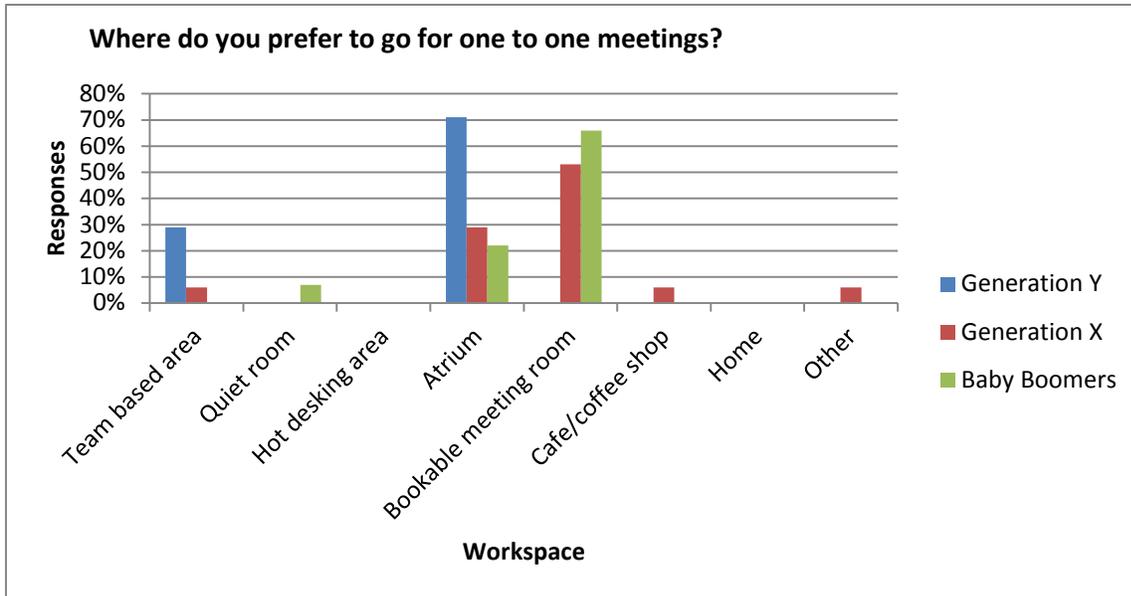
Analysis of the questionnaire results together with findings from the focus group show:

- All three generations favour working at home when undertaking work that requires concentration.
- The baby boomers had the highest response with 63% preferring to work at home, followed closely by generation Y with 57% and generation X with 40%.
- Interestingly, the quiet room, a space designed to be used for concentration work, was only the second most popular choice for baby boomers (15%) and third most popular for generation X (24%).

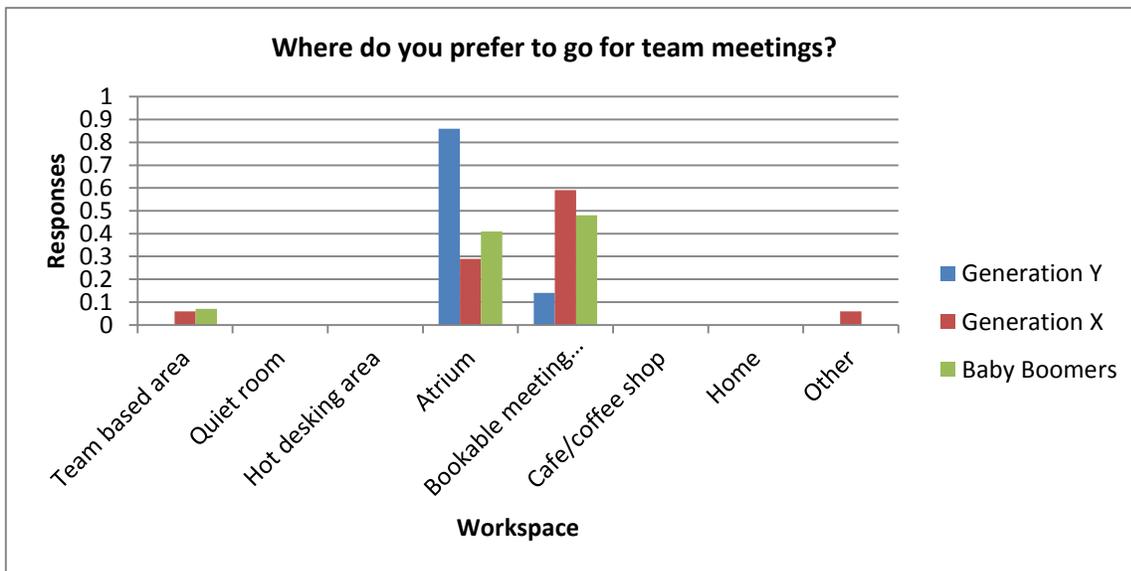
- The team based area, a work space that might not commonly be associated with concentration work, was selected by all three generations.
- Generation X show quite an even response across their three most popular choices, with home having the majority at 41%, but with the second and third most popular responses for the generation being quite close at 29% and 24% respectively. This would suggest that generation X are flexible as to where they prefer to work
- Generation Y and the baby boomers, however, are quite the opposite of generation X. To work from home is the most popular choice by a majority, with the second and third most popular responses receiving considerably less votes. This would suggest that both generations are quite certain of where they like to undertake work that requires a high level of concentration.
- Unsurprisingly, responses from the focus group outlined that noise and distraction was a major contributor to losing focus when undertaking concentration work which is why many prefer to work from home.
- During the focus group, the Baby Boomers made comments about preferring the quiet room as a place to undertake concentration work due to the convenience of its location. The quiet room is situated in close proximity to both the team based area where workers files, stationary and personal belongings are kept and also in close proximity to the kitchen and its tea and coffee making facilities.
- Location and convenience could be a key factor why working from home was the most popular choice for all generations. Working from home eliminates the need to commute and so is very convenient.

Scheduled Meetings

The questionnaire asked participants two questions regarding where they prefer to go for scheduled meetings. The questions focused on two types of meeting: team meetings and one to one meetings with a manager. The responses from the questionnaire are shown in figure form below (figures 1.2 & 1.3).



(Figure 1.2)



(Figure 1.3)

Both figures clearly show that there is a divide between generation Y, who like to hold meetings in the atrium, to generation X and the baby boomers who prefer to hold scheduled meetings in bookable meeting rooms.

The issue of meetings was raised in the focus group and key themes emerged which could explain the divide between the generations (*examples of comments made during the focus group session are highlighted in italic*):

Baby Boomers hold concerns that meetings in the atrium are not confidential which is why meetings with people from outside the Council are not allowed in the atrium. This highlights that baby boomers are concerned about people overhearing their meeting, which would indicate why they prefer bookable meeting rooms, as supported by a Baby Boomer's comment regarding people overhearing "*I don't care about disturbing others as much as other people listening in*" and "*team meetings should be in area where confidential matters can be discussed without being overheard*". These findings suggest that older generations prefer more formal meeting spaces and value privacy (Smith, 2008) which is perhaps not surprising as it is what they have been used to for the majority of their working lives.

Generation Y are not concerned about confidentiality "*Personally I don't care about the stuff I'm discussing being confidential*" and hold a more blasé attitude towards people overhearing "*I don't think people can really overhear what's being said anyway.*" This would suggest that generation Y are more comfortable holding meetings in more informal spaces which conforms to the results of the questionnaire.

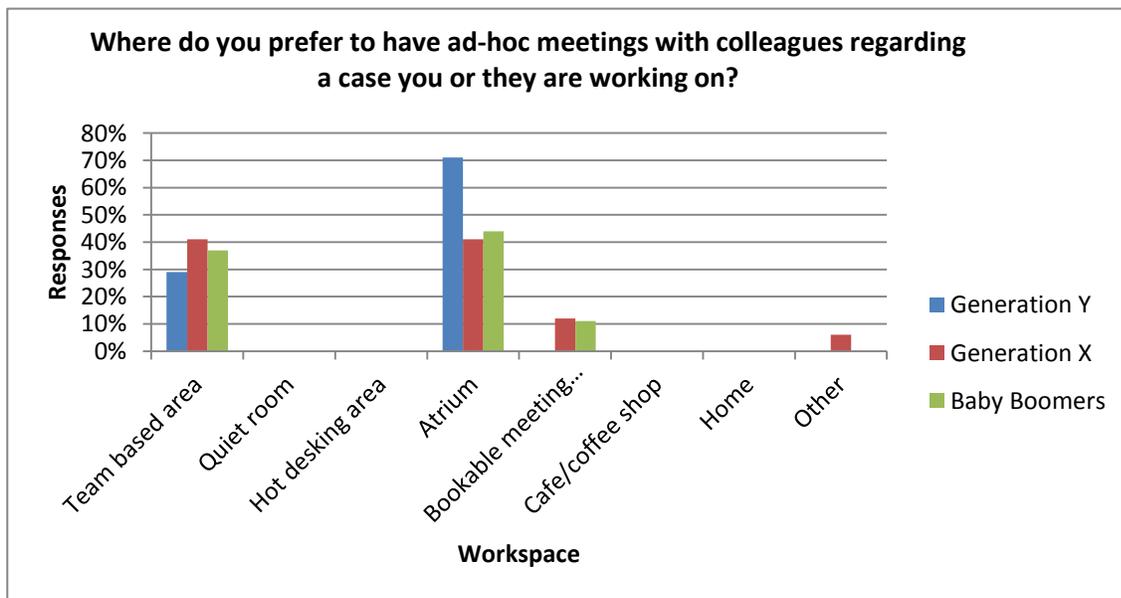
Generation Y also prefer the flexibility of informal meeting spaces which are not confined to time frames and booking procedures: "*The fact that you are not restricted to any timeframe and so can use the space on an ad-hoc basis makes it very convenient and useful*" and "*The atriums nicer. It's a nicer space. It's more relaxed, more open, and airy. It's not confined*" which would suggest that generation Y find informal meeting spaces such as the atrium more collaborative.

The questionnaire responses for generation X (59% in figure 1.2 and 53% in figure 1.3 in favour of bookable meeting rooms) would suggest that like their older co-workers, generation X also prefer formal confidential meeting spaces. However, comments from the focus group would suggest that they may be coming around to the idea of informal

meeting spaces after having seen that they are becoming common practice in modern office environments “*the atrium has modernised the work environment... Most modern buildings and companies have these sort of spaces and it’s actually a really nice area to meet.*” However, there are still concerns over the appropriateness of the atrium “*I think it also depends on who you’re having the meeting with. I’d have to ask them if they’re comfortable having the meeting in the atrium or not.*”

Ad-hoc meetings

The responses to question 5 in the questionnaire, which asked participants their preferred location to hold ad-hoc meetings, paint a contrasting picture to the responses regarding scheduled meetings.



(Figure 1.4)

Generation Y’s preferred choice was again the atrium with a majority response of 71%. generation X were evenly split at 41% each for the atrium and team based area, and the baby boomers marginally preferred the atrium (44%) over team based area (37%). Perhaps even more significant is that the option of the bookable meeting room came third to the atrium and team based area for both generation X and the baby boomers with 12% and 11% of the votes respectively.

This would suggest that when the meeting is informal in nature, such as a discussion with a colleague regarding a case being worked on; generation X and the baby boomers do not feel the need for formal and confidential meeting environments.

Collaboration

Questions 6 to 10 of the questionnaire focused on collaborative work asking both specific and general questions regarding collaboration and knowledge transfer. For example, where workers prefer to offer and receive guidance on cases they are working on, to more general questions such as where workers feel they share information, ideas and interact best. The responses to these questions came back overwhelmingly in favour of the team based area for all generations, with the atrium being a noticeable second most popular choice for many.

The focus group aimed to explore workers feelings on collaborative team based areas and the findings from these discussions help to explain why the team based area is such an important space for this aspect of knowledge work. Noticeably, there does not appear to be any major divides between the generations, which would suggest that team based areas suit all generations as a collaborative work space.

Team based areas where desks are not allocated to individuals allows for greater collaboration as colleagues gain the opportunity to sit next to different team members or members of different teams every day.

Generation Y believe this should be developed further so workers are sitting amongst colleagues from different departments *“I think it would be really useful if we were sitting with other departments such as planning, at that point we could really benefit from understanding the work they do and the information they would have available”* this reflects the younger generation’s enthusiasm for collaboration and interaction in the workplace.

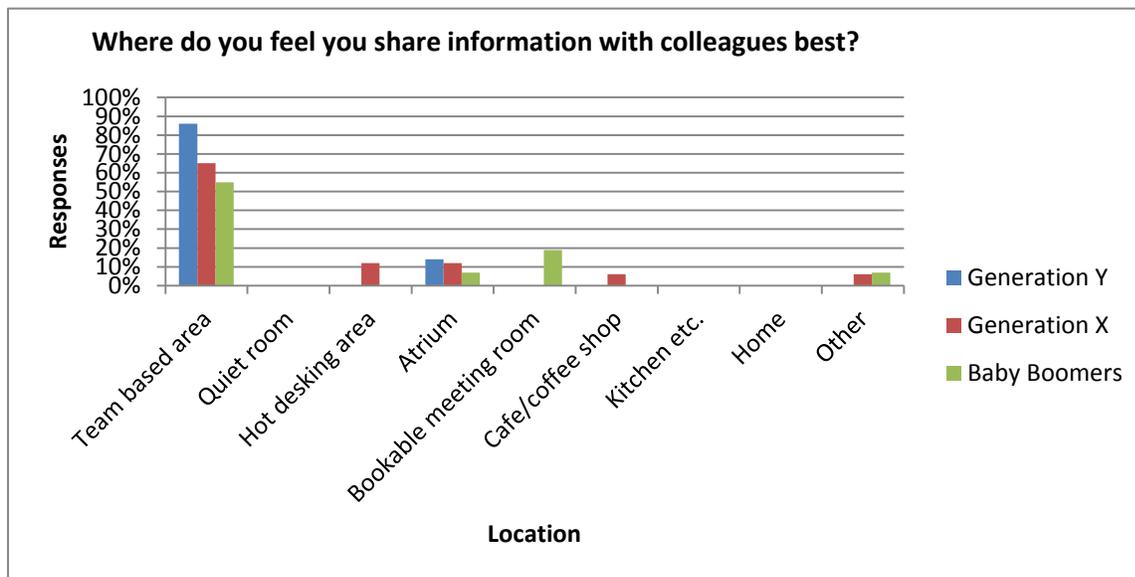
However, there is also recognition that if the team based areas become too interspersed, the benefits of working closely with your team could be lost, as demonstrated by a baby boomers comment *“The downside is that you lose contact with*

your team. I mean sometimes you hear someone in your team talking about something and you think, that's totally wrong, and so you wave at them and say no that's not right etc." which reflects the baby boomers apprehension towards moving away from close knit team environments (Smith, 2008) where their wealth of knowledge accumulated over the years is of great value (Vickers, 2005).

This is also something that generation Y are aware of, perhaps due to their limited experience in contrast to the baby boomers *"The danger is that if you're not near each other then you could miss that bit of advice or warning and end up with a problem that could have been avoided."*

Knowledge Transfer

Questions 6-11 of the questionnaire focused on knowledge sharing, from offering guidance and mentoring, to sharing information, ideas and interacting. As with the questions regarding collaborative working environments; all generations chose the team based area as their preferred location for this aspect of knowledge work.



(Figure 1.5)

Whilst the results of the questionnaire (figure 1.5) show that the team based area is the most preferred place to share knowledge; the kitchen, print room, corridors and atrium balcony also received a number of responses from all generations as a place where

knowledge was shared. Whilst it is noted that in most cases these places received relatively little amounts of response, which corresponds to Appel-Meulenbroek's (2010) findings, it is worthwhile considering in light of comments made at the focus group.

When asked how often the participants at the focus group felt they shared knowledge through chance meetings in say the kitchen or corridor etc, the responses showed that in fact these chance meetings take place more often than perhaps the questionnaire responses portrayed, as highlighted by generation X *"Quite often, someone even got me on the way into the office this morning, walking through the directorate's office area and asked if they could have a word about such and such."* A participant from generation Y noted that due to part of their team now working in a different area of the building, chance meetings had allowed them to keep in communication *"I've found it's changed quite a lot because half of our team is now working in a different part of the 4th floor and so often I cross those colleagues in the corridor or kitchen and because we're not sat near them at all now it's quite a good opportunity to discuss something."* It would therefore appear that informal interaction points such as the print room or kitchen can act as 'attractors', which draw workers around the building to these points where chance interactions can occur (Haynes, 2008)

Participants of the focus group noted that now the office had moved to a non-hierarchical structure with management sitting amongst staff, opportunities to discuss matters with management had also increased:

"As managers haven't got individual offices anymore, they no longer have one route back to their desk, so it's increased the chance of catching a manager to ask about a certain issue as opposed to previously where you had to check with their secretary when they would be free for a quick chat. It's a lot more convenient and less formal too."

It would appear that by removing the manager's office from the equation, workers, and in particular generation Y, now felt more comfortable approaching managers in a more informal environment as supported by Vickers (2005) and evidenced by a generation Y *"Yes, you see the managers a lot more now and so can try and collar them; you no*

longer need to stand by their door with cap in hand waiting to be seen” and “Yes, I now find it easier to approach managers now that we are all working in the same room.”

The focus group session highlighted some interesting points regarding mentoring, a key aspect of knowledge transfer. A member of generation Y noted that when offering guidance he often steps outside of the team based area so that the junior staff are more comfortable asking questions:

“I find that if they want to come and see me it’s often easiest to just stand outside by the atrium balcony. I think that it’s then easier for them to admit that they don’t know something. It’s kind of obvious if someone is struggling to understand something when you start to explain it and so I wouldn’t want to hurt someone’s pride by stating the obvious in front of everyone. I’d rather go out into the corridor so they don’t feel stupid asking a question.”

However, there are also arguments for holding such discussions within the team based area in order for others to get involved as demonstrated by generation X:

“The disadvantage of going somewhere else is that if you’ve got more than one person learning, then someone else may not gain that technical information that you’re telling that one person, or someone else might not overhear and think, oh yes, that’s interesting, I might join in as I’ve been wondering about this myself. So in the end you’re almost telling three people as opposed to one.”

Haynes (2011) makes reference to this when discussing open plan environments which can enable “creative eavesdropping” whereby younger staff can gain knowledge from listening to older colleague’s discussions. This is further enhanced through the effect of co-presence (Appel-Meulenbroek, 2010) a key contributor to knowledge sharing in an open plan environment. Creative eavesdropping can also be developed further to apply to the above example where younger colleagues join together when being mentored. However, this does not just apply to junior staff, indeed older colleagues can gain information from their younger counterparts *“Well, even the senior people don’t know everything. And so someone fresh out of college might be able to pass information the*

other way such as up to date case law etc.” A baby boomer also appreciates that it is possible to continue to learn regardless of age:

“I think it’s good to encourage junior staff to ask questions and I try to be approachable. And so you need to share knowledge, and by doing it in a team, someone might say no that’s changed, and so you end up learning as well, no matter what age you are.”

The ability to create an environment where all generations are learning is obviously of huge value to an organisation and also fosters collaborative relationships as suggested by Steelcase Inc. (2006), which notes that different generations build strong relationships by learning from each other.

Recommendations

The findings from the study show that in the context of LCC there are some key differences between the generations regarding certain aspects of knowledge work such as formal/informal meeting spaces. In other aspects, such as knowledge sharing, the generations appear to agree on key aspects such as mentoring and team based working environments.

In order to highlight the main findings of the study, a workplace for the multi-generational knowledge workforce is outlined below.

Team Based Area

The main work area should be open plan and consist of team based desks, but which are not confined to any one team or individual. This environment will aid knowledge transfer through co-presence (Appel-Meulenbroek, 2010) and ‘creative eavesdropping’ (Haynes, 2010). Findings from the study show that these work environments benefit all generations from a knowledge transfer perspective as it is not only the younger generations who are receiving tacit knowledge, but all generations, e.g. the younger generations can pass tacit knowledge regarding modern technology to the older generations (Vickers, 2005). The findings also suggest that by mixing with other teams new avenues of work can be explored and collaborative projects created.

However, team based areas should not become too interspersed as there is risk of losing the benefits of working within a close knit team such as interaction and guidance. The team based area is small enough at LCC for this not to happen. However, if this work environment were to be created on a larger scale then it may be beneficial to create sections of the office without physically creating barriers such as partitions, which would limit the level of co-presence.

Meeting Areas

The findings show that the younger generations within the workforce at LCC prefer informal meeting areas whilst the older generation like to keep scheduled meetings formal, but are happy to use informal areas for unscheduled meetings such as offering guidance. Generation X, who could be considered part of both the younger and older generations, appear to be sat on the fence, but are warming to the idea of informal meeting space.

The views of the older generations with regards to private meeting spaces for confidential matters are valid and respected by the other generations. However, how often private meeting spaces are used for genuine privacy reasons are unknown. Therefore, private meeting spaces should be provided in the office environment, but comparatively less than informal meeting areas. These spaces could also double as private working areas when not in use; as board and meeting rooms are often underutilised and therefore cost inefficient (Steelcase Inc. 2010).

The use of informal meeting spaces should be maximised. Findings from the study suggest that the success of the atrium space at LCC is due to it being light, airy and informal. Informal meeting spaces should therefore try to create a comfortable environment where colleagues feel more at ease talking with each other; where they will not be distracting others and where guidance can be nurtured.

The atrium at LCC also doubles as a space where colleagues can meet to eat their lunch together. This social environment is also seen to aid knowledge transfer through creating a network of trust (Steelcase Inc. 2010). Therefore, the office should provide these environments in order to build social networks within the workforce.

Spaces to concentrate

The findings from this study concur with Welcoming Workplace (Smith, 2008) that knowledge workers require space where they can undertake work that requires a deeper level of concentration. The findings from the study show that this space should be free from distraction and noise interference, allowing the worker to focus the mind on the task in hand. Interestingly, findings from the focus group show the importance of this space being conveniently located. If it is not convenient for the worker to use this space, for instance if it is located too far away, then the worker may continue to work in a distractive environment, which is not beneficial to the knowledge work being undertaken (Smith, 2008). Similarly, the characteristics of the space should be addressed as the quiet room at LCC was noted for being underused due to it being too cramped, noisy and having no natural light.

If private meeting rooms were to double as concentration booths, then these spaces should not be overcrowded. Smith (2008, p14) advises concentration areas should be designed for “solo working”. However, balancing the work place benefits against efficiency benefits can often result in these spaces becoming too constrictive.

Linking the building

Hughes and Simoneaux (2008) realised the benefits of maximising the use of space by ensuring that walkways and bridges provided places for workers to bump into one another and interact. The findings from the study show that all the generations have chance encounters where they either discuss matters on the atrium balcony or in the kitchen, whether offering guidance or discussing work or social matters. The office should therefore provide ‘attractors’ (Haynes, 2008) that draw workers around the building, such as the kitchen or vending facilities, which, through the spatial behaviour of movement (Appel-Meulenbroek, 2010), will aid knowledge transfer.

Conclusions

Changing workplace demographics mean that at present up to four different generations could be working side by side in the workplace today. Recognising the characteristics of

these different generations and how the workplace can be adapted to cater for their needs is of great importance to organisations to ensure for a happy and productive workforce (Smith, 2008).

Perhaps of greater importance is the recognition of the huge stores of knowledge and experience held by the older generations, whom are prolonging retirement, and the advent of the latest knowledge thirsty generation to enter the workforce (Smith, 2008). Appel-Meulenbroek (2010) identifies that knowledge transfer is studied comparatively less than productivity, however, designing office environments that facilitate knowledge transfer will maximise the cost benefit ratio of the real estate, the second greatest cost to business' after labour costs (Appel-Meulenbroek, 2010).

This paper, through a case study analysis, aimed to identify whether the multi-generational knowledge workforce require different work spaces to facilitate knowledge transfer. Recommendations have been made as to how office design can best facilitate knowledge transfer between the generations. Incorporating these recommendations in workplace design should enable greater knowledge transfer which in turn maximising the cost benefit of the real estate.

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