



Delft University of Technology

Towards an interdisciplinary employee-workplace alignment theory

Appel-Meulenbroek, Rianne; Colenberg, S.E.; Danivska, Vitalija

DOI

[10.1201/9781003128830-23](https://doi.org/10.1201/9781003128830-23)

Publication date

2021

Document Version

Final published version

Published in

A Handbook of Theories on Designing Alignment Between People and the Office Environment

Citation (APA)

Appel-Meulenbroek, R., Colenberg, S. E., & Danivska, V. (2021). Towards an interdisciplinary employee-workplace alignment theory. In R. Appel-Meulenbroek, & V. Danivska (Eds.), *A Handbook of Theories on Designing Alignment Between People and the Office Environment* (pp. 272-288). Roudledge. <https://doi.org/10.1201/9781003128830-23>

Important note

To cite this publication, please use the final published version (if applicable). Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights. We will remove access to the work immediately and investigate your claim.

TOWARDS AN INTERDISCIPLINARY EMPLOYEE- WORKPLACE ALIGNMENT THEORY

Rianne Appel-Meulenbroek, Susanne Colenberg,
and Vitalija Danivska*

1 Introduction

The 21 theories discussed in this book have in common that they address people's ability to do their job in a certain work environment. Some focus more on explaining why people behave the way they do (the psychosocial environment), while others take the physical and/or digital work environment (the workplace) quality as a starting point to explain certain employee outcomes. But they all work towards increased alignment between person and work environment. The end goal of employee-workplace alignment should be happy, healthy, productive and engaged employees, which has also been called thriving (Kleine, Rudolph, & Zacher, 2019). Kleine et al. (2019, p. 973) state, "thriving exhibits small, albeit incremental predictive validity above and beyond positive affect and work engagement, for task performance, job satisfaction, subjective health, and burnout." It is a crucial mechanism for facilitating short-term individual functioning (e.g. job satisfaction) and long-term human sustainability (e.g. health and development) at work (Spreitzer, Porath, & Gibson, 2012). All theories in this book emphasise that the alignment between the physical, digital and psychosocial work environment and the person plays a role in certain aspects of employee thriving at work. In general, three main employee outcomes can be distinguished: attitudes (job satisfaction and organisational commitment), health (mental and physical) and performance (Edwards & Shipp, 2007).

The degree of alignment between a person and his/her workplace determines whether their interaction leads to positive employee outcomes and thus contributes to thriving at work. In turn, employee thriving is likely to lead to positive outcomes for the organisation as a whole. On the other hand, suboptimal alignment results in stress, through either the perception of insufficiency of workplace supplies to fulfil the person's needs (Edwards, Caplan, & Harrison, 1998) or a person's inability to meet the demands of the workplace (Edwards & Shipp, 2007). Such an appraisal provides the motivation and direction for coping with the misalignment (Dewe, Cox, & Ferguson, 1993). There is no overall agreement in literature on the best classification of coping strategies, but Skinner, Edge, Altman and Sherwood (2003) argued well that so-called

*Corresponding author: h.a.j.a.appel@tue.nl

action-type classifications are the best, and that the distinction of primary versus secondary control is the most common one (see also Chapter 11 Two-Process Theory of Perceived Control). Several other chapters in this book have also addressed these kind of adaptive employee behaviours in a way.

Although satisfactory, healthy and productive workplaces are in everybody's best interest and are receiving increased attention in practice, research on improving the alignment between office employees and their physical workplace has not yet addressed all employee outcomes sufficiently (Appel-Meulenbroek, Clippard, & Pfnür, 2018). Appel-Meulenbroek et al. also showed that it is scattered across many disciplines (e.g. psychology, architecture, real estate, economy, engineering and ergonomics). Because of this, the available scientific insights are spread over many different (micro) theories. This book was an attempt to bring some of the important theories together, with this chapter taking a first step towards integrating them into an overall framework towards developing a grand EWA theory. According to Brown (2013, p. 484), for a theory to qualify as 'grand', it should have "implications beyond the immediate discourse within which it was created". Given the interdisciplinary integration attempt here, it would appear to qualify for the term.

The previous chapters in this book have addressed many characteristics of people and environments that should be considered to optimise EWA. For example, at the side of the person, characteristics such as personality (see Chapter 10), privacy needs (see Chapter 6) and other needs stemming from the evolutionary development of our brains (see Chapter 17) must be considered. While at the side of the environment, characteristics such as digital technology (see Chapter 4), indoor environmental quality (see Chapter 13), layout (see Chapter 21), and biophilia (see Chapter 15) influence alignment. This book clearly shows that there is a lot of theoretical knowledge that could enrich attempts for evidence-based design towards creating a supportive office workplace aligned to the employees. However, it seems that available scientific knowledge is either not clear, inaccessible for workplace designers/managers in practice, or not ready to be implemented in practice, judging from the data produced by the Leesman index (see Leesmanindex.com) about workplace satisfaction. From a sample of over 600,000 office employees worldwide, their database shows that while 85% agree that workplace design is important to them, only one-third is satisfied about basic design/environmental features such as temperature control, noise levels, quiet rooms, plants and greenery, and the variety of different types of workspaces (Leesman review 29).

1.1 An EWA theory

To further the advancement of the workplace research field by integrating existing knowledge, this chapter starts with the development of a grand EWA theory dedicated to office workplace design. Here, workplace design refers to physical and digital characteristics of the work environment and the psychosocial conditions stemming from them. As quoted in Chapter 1, such

a theory should select and define constructs of interest, describe how the constructs relate to one another, explain why the focal constructs were chosen and why they relate as predicted by the theory, and specify boundaries that denote the conditions under which the predictions of the theory should hold.

(Edwards, 2008, p. 171)

Obviously, this would require an interdisciplinary approach to the identification of the constructs, followed by a transdisciplinary approach to test the relationships between these constructs and how they hold in different contextual conditions in living labs and other experiments. In

Table 23.1 Theories in the book in alphabetical order

Action regulation theory
Activity theory
Attractive quality theory
Behavioural economics theory
The biophilia hypothesis
Ecological systems theory
Evolutionary psychology theory
Flourish theory
Information space
The job demands-resources model
Knowledge creation theory
Nudging theory
Organisational culture theories
Person-environment fit theory
Place attachment theory
Privacy regulation theory
Social constructionism theory
Space syntax theory
Task-technology fit theory
Temperament theory
Two-process theory of perceived control

this chapter we discuss a first step towards development of this new grand *EWA theory*, by identifying the focal constructs that Edwards mentioned across all 21 theories described in this book (see Table 23.1). These theories stem from a broad variety of disciplines, and integrating them would thus create the necessary interdisciplinary framework.

This chapter takes a first step into the integration of the assumptions of these theories by delivering a preliminary framework that provides a system overview (Nilsen, 2015) of EWA. To accomplish this, the most important tacit knowledge underlying the theories was made explicit to capture the essence of each theory. Then commonalities between the theories were identified, creating the focal constructs. The constructs were used to connect the theories in a preliminary framework. In the future, this framework could be developed into an EWA theory by connecting the constructs with empirical data.

The next section will explain the empirical approach (a concept mapping study) that was taken to create the focal constructs, followed by its results, a discussion of the implications of findings for workplace research and practice, and identification of the necessary further step to completely develop this framework into a grand theory on EWA.

2 Concept mapping

Integration of knowledge in the context of interdisciplinarity is defined by Repko (2012, p. 263) as “the cognitive process of critically evaluating disciplinary insights and creating common ground among them to construct a more comprehensive understanding”. To reveal such thematic commonalities and differences in the theories in this book, concept mapping (Kane & Trochim, 2007) was applied, also known as ‘group concept mapping’, to distinguish it from mind mapping techniques such as Novakian concept mapping (Kane & Rosas, 2018). This

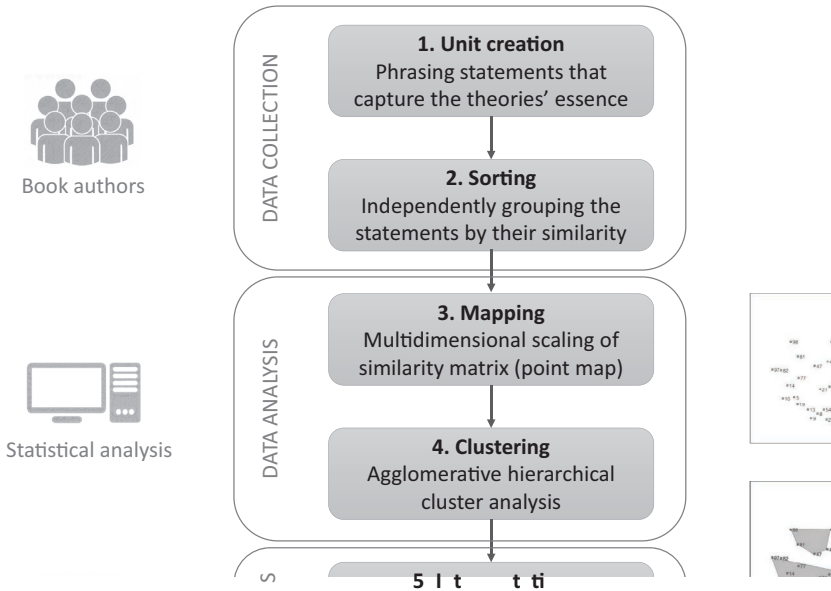


Figure 23.1 Applied concept mapping procedure in five steps

machine-driven content analysis method aggregates and integrates knowledge, creating a structure of ideas, values or opinions. Having evolved from educational planning and evaluation, it now has been used all over the world in a high diversity of disciplines (Trochim, 2017) for purposes such as text analysis, defining priorities and developing theoretical frameworks (Kane & Rosas, 2018).

Group concept mapping is a mixed-method approach to extracting knowledge that resides among a group of individuals, the ‘wisdom of the crowd’. Technically, the concept mapping process is a combination of brainstorming, card sorting (possibly accompanied by rating), statistical analysis and data visualisation (see Figure 23.1). Rosas and Kane (2012) showed that the method yields strong internal representational validity and very strong sorting reliability estimates.

Since the quested group wisdom was residing in the minds of the book chapter authors living all over the world, the data collection had to be done online. The concept mapping process was led by the research team, consisting of the three authors of this chapter.

2.1 Unit creation by book chapter authors

The first step of the concept mapping procedure included the creation of units that could refer to possible commonalities and differences between the theories. To keep a balance between the method’s reliability and the sorters’ burden, the aim was a maximum of around 100 units, as suggested by (Kane & Rosas, 2018). All 38 authors of this volume have been requested by email to grasp the essence of their chapter’s theory into three to five statements, meeting the following criteria:

- describing essential characteristics or assumptions of the theory, capturing its essential phenomena and relationships;

- making theoretical statements, not phrasing recommendations that follow from the theory or empirical results;
- containing a maximum of 15 words each (virtually fitting on a post-it);
- easy to understand for authors from other disciplines;
- clear and comprehensible on its own, even when it is placed between statements about other theories;
- avoiding the theory's name if possible, to reduce recognition of the statement sets.

To further clarify the criteria, the authors were told that the statements “could be, for instance, a definition of the main phenomena, their composition or mutual relationships, the main propositions, assumptions, or values related to the theory, or anything else essential for the theory”.

For 16 theories, the statements were initially created by the chapter authors, while for the remaining five theories the editors have phrased statements based on the author's chapter draft to keep the research from delay. In all cases, statements have been discussed between the chapter authors and the three members from the concept mapping research team until they were approved. The members of the research team have individually tested the collected statements by their fit with the aforementioned criteria, discussing the results together. Statements were rephrased if needed to increase their comprehensibility, and similar statements within one theory were deleted. There was no aim for a same amount of statements per theory, since one theory naturally might have more facets than another. Changes to the original statements were presented to the concerning authors for approval. In the end a total of 102 units, ranging between four and six (average = 4.9) statements per theory, was created and stored in an Excel file.

2.2 Grouping the statements

First, the 102 statements were randomised by sorting them alphabetically, after which they were numbered to create the ability to reconnect them to their theory after the sorting. The numbered statements were entered into the remote card sort tool of UsabiliTEST, a Texas-based company providing tools for testing usability and improving information architecture, used by companies and universities worldwide. With this online software, a user test was created for open-ended card sorting, allowing participants to create their own groups according to their logic instead of providing categories beforehand in a closed sort. An open sort is ideal for collecting user-generated ideas for logical content groupings.

All 38 authors were invited to participate in sorting the statements, by sending them an email containing a link to the card sort test which they could not share with others. They were instructed to arrange the cards into groups that made the most sense to them and that they could create as many groups as they wanted, as long as they did not make a miscellaneous group such as a category 'other' or 'mixed'. They were able to pause the sorting and to continue at a later moment before submitting their contribution to the database. Two weeks before closing the test, a reminder was sent to those who did not yet submit a contribution. To each participant the cards were randomly presented by the system. While authors might still recognise their own statements, tending to put them together, this effect was mitigated by the other sorters' grouping.

Although methodological criteria have not been established yet, it looks like a number of at least 11 sorters is required for reliable results, and while more sorters is better, their added value decreases beyond 20 (Rosas & Kane, 2012). When the card sort test was closed, eight weeks

after the invitation was sent, 22 authors had participated in the sorting with an average completion rate of between 90% and 100% of the statements. One sorter has been excluded from the data analysis because the completion rate was below 20%, as this would not contribute much to the discriminant validity of the concept mapping. On average the included sorters created 11.3 content groups with a mean of nine statements per group. One of the sorters commented: “It was a nice exercise! Quite a lot of statements to keep a good overview, but it was doable.”

2.3 Statistical analysis and concept map generation

First, the raw data from the included sorters were exported from the UsabiliTEST system as an Excel file containing all groups that were created by the sorters and the names they had given them. These data were cleaned by deleting two miscellaneous groups (labelled e.g. ‘misc’ or ‘A’), since these statements were not grouped based on content similarity and therefore including these groups would distort the analysis. On this cleaned file, R-CMap (Bar & Mentch, 2017) was run, a piece of open-source software in R programming language. The first step of the analysis involved mapping (see Figure 23.1, step 3), using non-metric multidimensional scaling to transform the multidimensional data into a two-dimensional representation of the relative distances between the statements. This resulted in a point map, where each point represented a statement and the distance between them represented their content difference (the closer, the more similar). The second step (Figure 23.1, step 4) involved agglomerative hierarchical clustering, subsequently merging the two clusters at shortest distance, determined by the closest pair of points.

Since there was no desired number of clusters to aim for, the dendrogram was viewed to indicate the useful range of cluster amounts to consider. In this tree representation of the clustering process, the length of stems represented the distance between two merged clusters while corresponding to the within-cluster variance. Based on the dendrogram, the cluster analysis iterations ranging from five to 15 clusters were studied closely by each member of the research team to decide at what point the next merging was not logical or did not contribute to clarity of the themes. This resulted in the preference for eight clusters.

3 Results

3.1 Identified concepts and regions of meaning

The concept mapping revealed an eight-themed structure underlying the 21 theories present in this book. Figure 23.2 shows the 102 statements plotted into two-dimensional space and grouped into eight clusters based on their similarity as judged by the sorters. The closer the points or clusters appear on the map, generally the more similar they are according to the sorters, although the translation to two dimensions means it will always include some noise due to randomisation. Cluster names were chosen by the research team, based on the statements’ content and inspired by group labels that were created by the sorters. In this decision process the content of the statements in the centre of the cluster was of greater weight than that of statements at the edges, and distances to other cluster were also taken into account.

At a higher level of abstraction, three regions of meaning (represented by the dotted lines in Figure 23.2) were identified based on the iteration of the cluster analysis where the eight clusters had been merged into three. These regions refer to (1) aligning workplace supplies to fit with employee needs, (2) human cognition and behaviour towards reaching alignment, and (3) the organisational context, which will now be discussed in more detail.

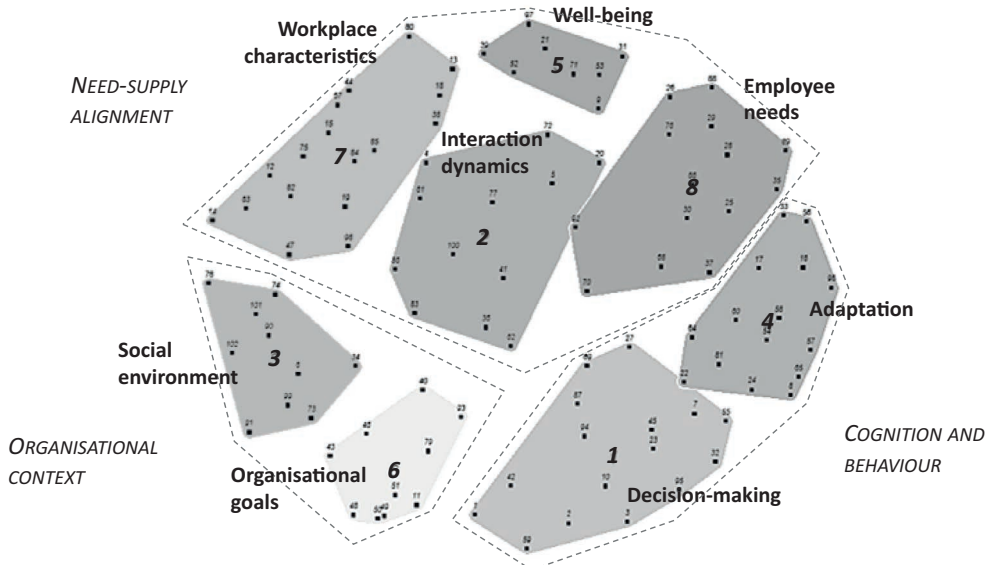


Figure 23.2 Clustering of the 102 theoretical statements into eight themes and three regions of meaning

3.1.1 Need-supply alignment

Four clusters form the region of meaning that comprises statements on alignment of workplace supplies to individual user needs. Cluster 7, labelled ‘Workplace characteristics’, contains both physical and digital office design aspects and represents the environmental ‘supplies’ that should be aligned to employee needs by workplace managers. Obviously, this cluster obtained statements from theories on environmental qualities (the theory of attractive quality and flourish) and on fit (action regulation theory, information space, the job demands–resources model, task–technology fit). The 17 statements in this cluster make it the largest one. Together they indicate that the workplace either functions as a resource, positively impacting employee outcomes, or as a demand, if not aligned well with employees’ needs. Especially dealing with the digital/virtual and physical workplace simultaneously represents a major challenge for employees. The workplace clearly is a complex system of characteristics that often cannot be perceived in isolation. Additionally, alignment attempts by workplace managers do not only influence employee outcomes, but also steer their activities in and their use of the office. Typical statements in this cluster are “The physical environment can be divided into environmental demands and environmental resources” and “Workplaces are a constellation of tools that mediate employees’ activities”.

The ‘Employee needs’ cluster (cluster 8) on the other side of this region represents the employee in the person–environment relationship. The statements in this cluster all focus on user needs, emphasising that the degree of EWA is higher (and thus more likely to improve employee thriving) when the environment supports the most important needs of users. Some also show that people have inherited spatial preferences to settings similar to our ancestral environment and are psychologically oriented towards natural elements. Statements in this cluster include “Whether environmental stimuli are pleasant depends on the internal state of being” and “Person–environment interaction is optimal when the environment supports the most important needs of users”.

In addition, statements on the process of interaction between people and their workplace were clustered together in cluster 2, labelled 'Interaction dynamics'. Statements in this cluster imply that users and their workplace continuously interact with each other and that this interaction creates a bond. They also indicate that perception of workplace quality changes over time. If continuous mutual alignment is successful, this leads to occupant satisfaction, workplace experience, health, wellbeing and economic benefits, because, as one of the statements says, "Perception of the workplace quality is just as important as actual workplace quality", and another explains, "Attractive workplace aspects lift occupant satisfaction and workplace experience." Alignment is thus not a one-time process, nor should there be a one-size-fits-all approach. Statements include, "Perceived quality of a workplace attribute can change over time" and "Workplaces shape their users as well as the users shape their workplace."

Last, cluster 5 is labelled 'Wellbeing'. It is the smallest one and refers to psychological health and wellbeing and to feeling safe as basic conditions for performance. For instance, people need the right amount of stimulation and protection (physical openness) to function well. This cluster indicates potential consequences of top-down workplace realignment attempts. When people have become 'attached' to their current workplace, it may be difficult for them to accept changes. When place separation or place loss are experienced due to changes, workplace attachment becomes apparent and can have negative consequences for employee outcomes. Typical statements include "Scarcity of resources in the face of challenge can lead to stress, exhaustion and burnout" and "Coping with place loss is difficult for employees."

3.1.2 Cognition and behaviour

The second region of meaning shows that alignment of employees and their workplace is not just a matter of providing a 'theoretically' optimal workplace. Both clusters in this region show that alignment can also suffer or benefit from peoples' cognitive processes and adaptive behaviours.

Cluster 1, labelled 'Decision-making', contains statements explaining how employees' preferences, needs or group norms influence their decision-making and behaviour in dealing with the work environment, and how they purposely interact with the environment to achieve desired outcomes. Some statements emphasise that humans are biased in how they perceive the environment, which steers their behaviour in and use of the environment in a certain direction. As one of the statements summarises: "cognitive processes mediate the effects of physical conditions on human behaviour." Examples of other statements in this cluster are "Adoption of technology depends on users acknowledging this technology improves executing tasks", "Humans are biased in how they perceive visual and auditory distractions" and "People do not always make decisions that are in their own best interest."

Cluster 4 is based on statements similar to those in the adjacent cluster 1; however, it refers more strongly to the need for control, the role of personality and ecological systems in employees' attempts to adapt their behaviour to their work environment, and therefore is labelled 'Adaptation'. If people cannot change the environment to cope with misalignment, they compromise their needs by adapting themselves to the environment (secondary control). The statements in this cluster tell that, in general, people tend to maintain the same environmental settings instead of changing them to optimise the environment to their needs, especially if they have too many options to choose from, and that consideration of personality traits may help to understand individual preferences and behaviour in the workplace. They explain, "Employees have an innate need to control their environment" and "Workers strive to achieve the best possible fit between their actual and desired levels of input and output."

3.1.3 Organisational context

Alignment of workplace supplies with employee needs, perception and dealing with misalignment all take place within an organisational context. The two clusters in this region describe the social setting of the workplace. Cluster 3, labelled 'Social environment', contains statements about workplaces being more than just physical space and digital support, referring to a psychosocial dimension. They indicate that workplaces are defined, valued and experienced in a social context through a process of individual and joint reasoning, making them objects of a social process. As one of the statements summarises, "Workspace is physical, workplace is the social and organisational work environment." Examples of other statements in this cluster are "Where people work together, a social workspace arises regardless of where they are located" and "Both workspace and workplace are socially and discursively constructed with language."

Cluster 6 comprises several statements on organisational culture, corporate goals and possibilities for regulation and knowledge creation, and it is labelled 'Organisational goals'. Its statements indicate that organisational culture might be unseen but is one of the most powerful elements in an organisation. It can be incorporated into office layouts, work practices and interior designs, and it connects people to the workplace through shared experiences and values. In addition, workplace relates to other organisational goals, such as knowledge sharing and sustainability. Typical statements are "Organisational culture can be seen, felt and heard when entering office premises" and "Culture connects members to place through shared historical experiences, values and symbols."

3.2 Relations between theories

Based on the statements in each cluster it is possible to detect which theories are represented in the clusters and to what extent (see Table 23.2). This shows that for some theories all statements congregate in one cluster where they strongly define such a cluster, while others are distributed over many different clusters. When looking at those theories that have more than half of their statements in one cluster (e.g. privacy-regulation theory, social constructionism, the biophilia hypothesis), a possible explanation might be that these are micro-theories that explain a certain phenomenon (see Chapter 1 for a discussion on types of theories). Those theories that have statements in four or five clusters (e.g. action regulation theory, theory of attractive quality, flourish, and evolutionary psychology) could be considered grand or mid-range theories with broader theoretical perspectives.

Next, Table 23.2 is visualised for the three regions of meanings, to provide a more direct view of which theories appear to relate to each other as well (see Figure 23.3). In this visualisation, one alteration to the table has been made, based on interpretation of the statements by the research team. Namely, although one statement of the biophilia hypothesis ("Space can be considered as a cluster of symbolic and sensual codes") grouped with cluster 3 'Social environment', it does not appear to fit well with the meaning of the rest of the statements in this cluster. Therefore, this statement's position in that region of meaning is not included in Figure 23.3. The figure shows that only a few micro-theories are focused on only one of the three regions and most are on the intersections of the circles. The location of the micro-theories in the outskirts of the circles seems logical: organisational culture theory and social constructionism indeed explain the 'Organisational context', while the biophilia hypothesis, space syntax theory, and the theory of attractive quality relate to 'Need-supply alignment'. Additionally, privacy regulation theory fits the 'Cognition and behaviour' region well. All intersections between regions of meaning have at least one theory dedicated to it. Knowledge creation theory is the only one in

Table 23.2 Theories represented in the eight themes by less than (●), exactly half (●●) or more than half (●●●) of their four to six statements

	<i>Need-supply alignment</i>				<i>Cognition and behaviour</i>		<i>Organisational context</i>	
	<i>7. Workplace characteristics</i>	<i>8. Employee needs</i>	<i>2. Interaction dynamics</i>	<i>5. Wellbeing</i>	<i>1. Decision-making</i>	<i>4. Adaptation</i>	<i>3. Social environment</i>	<i>6. Organisational goals</i>
Person–environment fit		●	●●			●		
Job demands–resources	●●			●				●
Action regulation	●	●			●	●		●
Privacy regulation					●●●	●		
Task–technology fit	●●●				●			
Information space	●●		●				●	
Social constructionism							●●●	
Ecological systems		●				●	●●	
Temperament		●	●			●		
Control		●			●	●●		
Organisational culture								●●●
Attractive quality	●	●	●	●				
Flourish	●	●	●	●		●		
Biophilia		●●●					●	
Attachment			●	●●●				●
Evolutionary psychology		●		●	●	●		
Behavioural economics			●		●	●●		
Nudging			●		●●	●		
Activity	●				●●●			
Space syntax	●●●							
Knowledge creation					●		●	●●

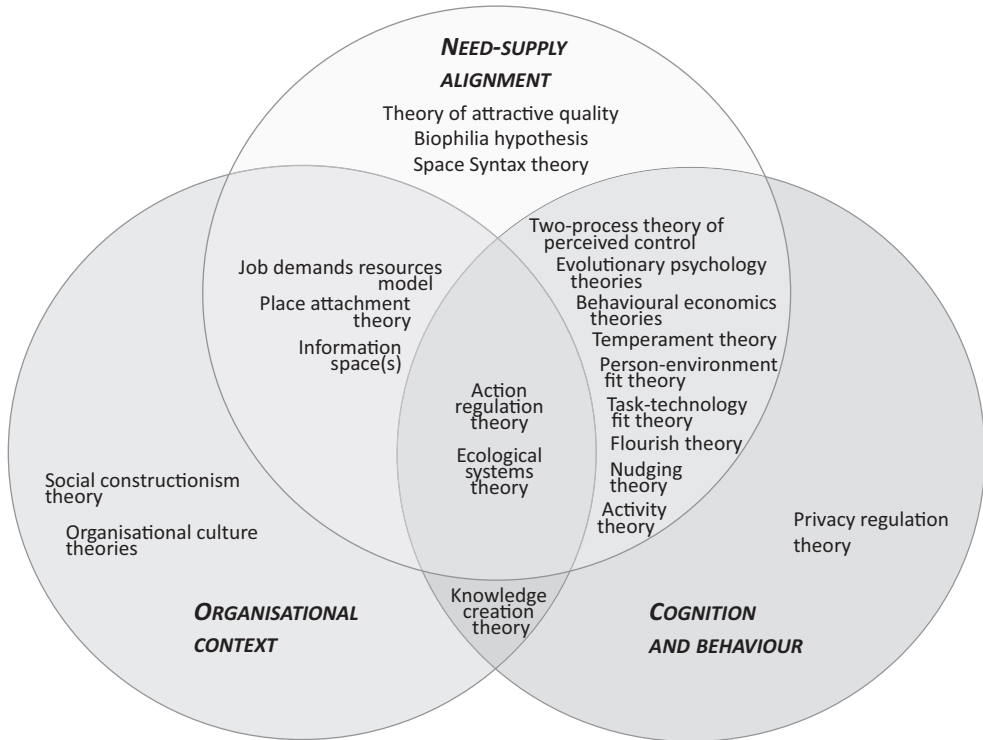


Figure 23.3 How the theories relate to the three regions of meaning

the intersection of cognition and behaviour with the organisational context, where its assumptions fit really well. The largest number of theories is located in the intersection of need-supply alignment with cognition and behaviour. This shows the width of the psychology field with its very many theories that are or could be applied to EWA. Three theories are on the intersection of need-supply alignment and the organisational context: the job demands-resources model, place attachment theory, and information space. Indeed, they all approach alignment on a more organisational level than the other psychological theories, which makes it logical that they are positioned here. Last, action regulation theory and ecological system theory ended up in the middle of the figure at the intersection of all three circles. Both theories appear to be more of a grand theory, providing a systematic overview of the nature of knowledge in both fields. Perhaps this is why their assumptions are linked to many other theories and why they ended up in many concepts. Overall, there are no theories showing up in an illogical place in the concept mapping results, confirming the validity of the outcome of this method.

4 Discussion

4.1 Towards a new grand theory on EWA

This chapter has taken a first step towards the development of a grand theory on workplace-employee alignment. It has selected and defined the constructs of interest (the eight concepts) that such a theory could include and shows the framework created out of this. Future steps will

have to define how these concepts relate to each other and why this is the case. This requires more research within each region of meaning and between the three regions. Figure 23.4 shows the EWA framework that came forward from the concept mapping data. All relationships are portrayed with two-directional arrows, as the exact relationships are yet to be determined with future research, including how all concepts explain employee thriving.

The ‘Need-supply alignment’ construct shows a clear confirmation of P–E fit theory, where the environment and person need to fit to each other to achieve positive employee outcomes and behaviours; with the hope and expectation that positive employee outcomes lead to positive organisational outcomes. Edwards and Shipp (2007) concluded from reviewing P–E fit studies that subjective needs–supplies fit is the most important type of fit to obtain positive employee attitudes and optimised employee wellbeing (both being part of thriving). Although P–E fit theory is largely focused on the psychosocial work environment, there is also a lot of research on satisfaction with the physical workplace to support the attitude part of this claim for the physical workplace too. Such studies are mostly based on satisfaction surveys (Appel-Meulenbroek et al., 2018), thus measuring subjective needs–supplies alignment and the attitude resulting from it (satisfaction). However, research on the physical workplace and wellbeing (including subjective wellbeing) is in a nascent state with a focus on preventing physical health issues rather than enhancing mental wellbeing (Colenberg, Jylhä, & Arkesteijn, 2020; Van der Voordt & Jensen, 2018), so the wellbeing part of the claim is so far less supported by evidence to extend it to physical workplaces. In addition, a downside of most workplace design studies is that they generally focus on measuring the workplace characteristics and ignore measuring employee needs (Budie, Appel-Meulenbroek, Kemperman, & Wejjs-Perrée, 2019). So, to get more insight into employee–workplace dynamics and how this creates and/or is influenced by workplace attachment and wellbeing, more research on these topics is necessary. In addition, less important needs that are fulfilled by the office environment might not raise satisfaction and wellbeing as much as when very important needs are met. Similarly, the effects of stress resulting from a needs–supply misfit is probably larger when this regards important needs for a person. So, it is first necessary to identify the most important needs that a workplace should align to.

Regarding the task performance outcome of thriving, Edwards and Shipp (2007, p. 31) concluded for the psychosocial work environment that “the effects of demand–abilities fit and

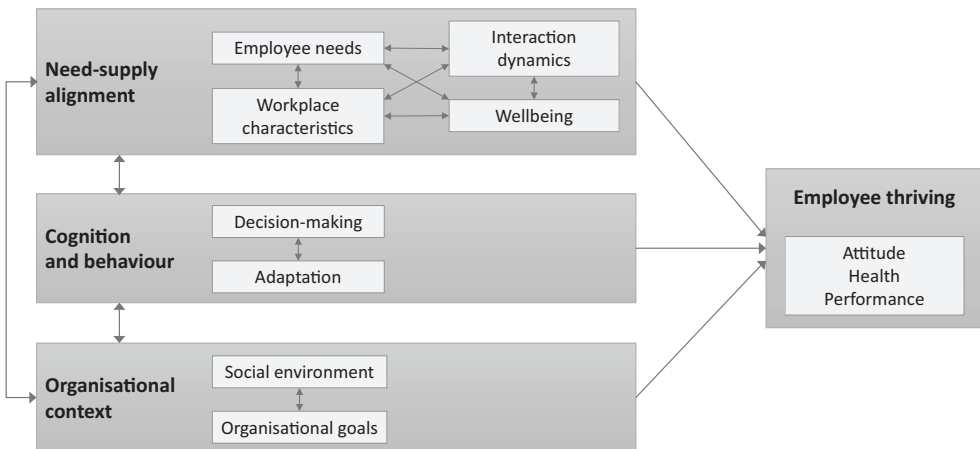


Figure 23.4 An employee–workplace alignment framework

needs-supplies fit are interactive, such that both types of fit are required for task performance to occur.” Demand-abilities fit regards whether people are not under- or overqualified for their job; whether they have what it takes to meet the environmental demands (Edwards et al., 1998). Extending this to the physical workplace, one could think of the ability to deal with noise and other environmental demands. What Edwards and Shipp suggest is that when such demands could be internalised as desires, this would improve the perceived fit between needs and supplies. To stick with the same example: if employees that are annoyed by the amount of noise in their workspace from brief conversations could be convinced of the value of such conversations to the extent that they start seeing it as an essential need for themselves, they might have more understanding for it. This would then increase subjective alignment of their need to concentrate and the ability to do so in the office. In the framework this type of behaviour is represented in the statements on ‘Cognition and behaviour’, which also relate to literature on job crafting: “a specific form of proactive behaviour in which the employee initiates changes in the level of job demands and job resources” (Tims & Bakker, 2010, p. 1). Just like employees might customise their jobs to their individual needs and preferences (Berg, Dutton, & Wrzesniewski, 2008), they can also do this with their office workplace. In this case it would probably better be called ‘workplace crafting’, where the employee exerts control, if possible, to make changes to the physical workplace that better fit his/her needs. Luong, Peters, Von Hippel, and Dat (2019) already used this term to refer to personalisation behaviour in the workplace, when employees felt insufficient fit between their own identity and that of their individual workspace. This is a way of actively coping with misalignment that has been observed by others as well (e.g. Babapour, Karlsson, & Osvalder, 2018). Tims and Bakker (2010) suggest that crafting increases wellbeing and could thus set the stage for thriving. But what brings people to engage in crafting has not yet been studied sufficiently. Sticking with the previous noise example, research has shown that many employees do not opt for such an active approach in the office, but rather try to ignore it (e.g. trying harder to concentrate) even though they know this will be less effective (Appel-Meulenbroek, Steps, Wenmaekers, & Arentze, 2020). Research could find out why this is the case. And if active control of the workplace is not possible, employees tend to adjust themselves to the environment to improve alignment by so-called secondary control (see Chapter 11 Two-Process Theory of Perceived Control). This also deserves more research on the reasoning behind this form of adaptation.

In workplace studies, data collection on the ‘Organisational context’ is often limited to perceptions of employees in a one or two organisations. It therefore remains unclear how the social environment and long-term organisational goals are related to workplace alignment processes. Nevertheless, some research on organisational culture and workplace design has been conducted. For example, Van der Voordt and Van Meel (2016) described dimensions such as hierarchy, formality and individuality that can be visualised and supported through the workplace. But, as they state, it remains unclear how physical workplaces can create cultural changes and vice versa. The achievement of other organisational goals such as sustainability and knowledge sharing through EWA would also benefit from more scientific evidence behind such mechanisms. As workplaces appear to be defined, valued and experienced through a process of individual and joint reasoning, more research into such social processes is necessary as well. Studies on participatory design processes suggest that this might convince those who oppose a workplace intervention to ultimately agree with it (Rolfö, 2018). Perhaps it can also aid in increasing demands-abilities fit, as workplace managers are able to explain the benefits of certain unpleasant demands of the environment (like noise) to employees in the process. In addition, it seems a logical way to identify which needs to focus on as well. But why should researchers and organisations only study or apply participatory processes in case of workplace interventions? They might also identify

interesting input for EWA theory development on workplace experience throughout time in established work environments.

4.2 Limitations and future steps

Overall, the eight concepts for an EWA theory show that alignment of a workplace and an employee is interactive, personal, social and not a one-time effort. Especially the latter two have not yet received much attention in research on the physical and digital workplace and thus need further elaboration to be able to develop a full EWA theory. Qualitative research methods could provide insight into the identified processes of individual and joint reasoning about the workplace amongst employees and what this means for their perceptions and eventual thriving. Regarding the continuous effort to keep alignment over time, studies on the CRE strategy level are already calling for agility and dynamic alignment (e.g. Cooke, Appel-Meulenbroek, & Arentze, 2019). This chapter shows that several theories suggest that it is highly relevant at the more operational employee-workplace alignment level as well and thus deserves more research. In addition, the first holistic studies on employee wellbeing suggest that satisfaction outcomes of EWA might support the other two types of outcomes (wellbeing and performance). For example, Appel-Meulenbroek, Van der Voordt, Aussems, Arentze, and LeBlanc (2020) found that perceived alignment of indoor environmental qualities, such as temperature and lighting, to employees' needs did not directly decrease stress or increase performance, but instead it increased feelings of recognition and appreciation, which in turn increased involvement which decreased exhaustion and increased efficacy. So, this suggests a complicated and mediated multi-stage mechanism of alignment to achieve thriving, which needs much more research to be able to complete an EWA theory. Figure 23.3 informs researchers which theories to incorporate in future research if they want to further develop specific concepts or interactions between concepts. Some theories might come from other disciplinary fields and might thus not be familiar to them yet. Hopefully, further integration of theories across disciplines helps researchers cross existing disciplinary boundaries to further develop EWA theory.

An important limitation of the framework in this chapter is that it is based on 21 theories that were selected in an uncontrolled manner, by soliciting suggestions for relevant theories within the editors' networks. A first important future step would thus be to verify this framework with the assumptions of potential other relevant theories from these and other disciplinary fields, to see whether the eight identified concepts cover everything or maybe still miss some aspects of EWA. For example, the social psychology field is extensive and might not have been fully represented with the few theories here to fully define the social environment cluster. In addition, the assumptions extracted from the theories for this concept mapping exercise could change if authors from different disciplinary fields that also use this theory would create them. So, it would be good to discuss the concepts and their essence, for example through a Delphi method approach, with a group of representatives from many different disciplinary backgrounds, and also by including workplace managers in practice.

The second step towards EWA theory development would be to develop scales for testing relations between the eight concepts, as this is another limitation of this chapter. As Edwards and Shipp (2007) point out, it is important to develop items that measure the person and the environment on the same level (global, domain, facet) and have both nominal and scale equivalence (respectively meaning that they are described by the same terms, for example desired and perceived privacy, and assessed on the same response scale). As physical workplace design research is a relatively young discipline, so far it has not created measurement scales that have been widely

adopted either to measure workplaces or to measure employee needs. Instead, researchers generally create their own scales for each individual study. As Carpenter (2018, p. 25) pointed out, “The linking of measurement indicators to a concept is a complex process” that consists of 10 steps. So far, much of the workplace research has not gone through such a rigorous method of scale development and thus has a long way to go.

Once appropriate scales are created and tested, the third and final step would be to collect data in living labs and other field experiments to describe how the eight concepts relate to one another and to employee thriving outcomes and why. Repeating such studies in many different organisational and office contexts should then specify the conditions (and boundaries) under which the predictions of the EWA theory should hold. Only then would the EWA theory that has begun to develop in this chapter meet all criteria for a theory as put forward by Edwards (2008).

5 Implications for practice

This chapter of the book largely aims at further theoretical development of the workplace research field. Nonetheless, the developed framework also shows important take-aways for workplace managers in practice. The concepts in the ‘Need-supply alignment’ part of the framework suggest that managers should not only look for an objective needs-supplies fit, but work on achieving subjective alignment of the workplace as well. As decision-making and adaptation behaviour show clear individual differences in how to achieve alignment, it is important to identify what type of employees work for the organisation and what their main needs are. This could be very different between different teams and/or departments, and of course also depends on their activities, so this is not an easy task. Also, most employees will have previous experiences with one or more office types within other organisations or in their current job. This means that they could experience loss differently when their work environment changes. It is thus important not to overlook feelings of place attachment in change processes. Participatory design can help prevent or at least decrease stress and thus deserves more attention in workplace management in practice.

Workplace managers generally do not have a background in psychology and are not located within a department with colleagues that do. So, including the essence of the ‘Cognition and behaviour’ part of the framework in their daily practices might be difficult. If increasing workplace experience and employee wellbeing are important goals of the organisation, it might make sense to seek further training in this area. With the right training, workplace managers could, for example, observe coping behaviours in the office that indicate employees’ stress and perceived lack of control. These might indicate perceived misalignment of the workplace to individual needs and could be a nice addition to the custom employee satisfaction surveys that are mostly used to identify employee satisfaction up till now. Such insights could then be used to discuss potential workplace interventions with employees and search for further optimisations.

The ‘Organisational context’ is an obvious aspect of a workplace, nevertheless it does not always receive attention in workplace strategy and interventions. Organisational culture is often depicted as an iceberg and is thus not very visible and explicit. Workplace managers could benefit from more awareness of how workplace design influences company culture and other organisational goals, and they could check more regularly whether those goals are supported by the workplace design. Especially if workplace interventions are based on efficiency reasoning, managers might overlook the consequences for employee thriving. Given that the workplace is also a social system, what happens in the workplace relates to other systems beyond the workplace, so that could cost the organisation much more than was saved by space reduction.

6 Closing words

In practice, there appears to be an increased focus among office organisations and their workplace managers on user-centred design solutions and healthy workplaces, through which they aim to support user needs to reach employee thriving at work. Nonetheless, there are still too many organisations that have invested a lot of money in designing what they feel has become a wonderful office, ending up with a series of consistent complaints from employees. Although they were willing to create a high-quality environment and perhaps succeeded to do so in an objectively measured way (meeting norms, maybe obtaining certificates like WELL or BREEAM), they fall short in reaching subjective alignment and thus in supporting their employees optimally. We hope that further development of the EWA theory introduced in this chapter will improve alignment in practice as well. However, this will require lots of future research as discussed.

This is only the first book to appear in this Transdisciplinary Workplace Research and Management book series. The next book in this series (available at approximately the same time as this first volume) discusses theories on corporate real estate, facility and workplace management processes and strategy formation, and extracts a framework of concepts from them in the same way as done here. This will provide more insight into how to create an optimal workplace experience for all stakeholders in the organisation in the long term and achieve alignment on the strategic level as well.

7 References

- Appel-Meulenbroek, R., Clippard, M., & Pfnür, A. (2018). The effectiveness of physical office environments for employee outcomes: An interdisciplinary perspective of research efforts. *Journal of Corporate Real Estate*, 20(1), 56–80. <https://doi.org/10.1108/JCRE-04-2017-0012>
- Appel-Meulenbroek, R., Steps, S., Wenmaekers, R. H. C., & Arentze, T. (2020). Coping strategies and perceived productivity in open-plan offices with noise problems. *Journal of Managerial Psychology*, Ahead-of-Print. <https://doi.org/10.1108/JMP-09-2019-0526>
- Appel-Meulenbroek, R., Van der Voordt, T., Aussems, R., Arentze, T., & LeBlanc, P. (2020). Impact of activity-based workplaces on burnout and engagement dimensions. *Journal of Corporate Real Estate*, 22(4), 279–296. <https://doi.org/10.1108/JCRE-09-2019-0041>
- Babapour, M., Karlsson, M., & Osvalder, A. L. (2018). Appropriation of an activity-based flexible office in daily work. *Nordic Journal of Working Life Studies*, 8(S3), 71–94. <https://doi.org/10.18291/njwls.v8iS3.105277>
- Bar, H., & Mentch, L. (2017). R-CMap: An open-source software for concept mapping. *Evaluation and Program Planning*, 60, 284–292. <https://doi.org/10.1016/j.evalprogplan.2016.08.018>
- Berg, J. M., Dutton, J. E., & Wrzesniewski, A. (2008). *What is job crafting and why does it matter*. Retrieved from <https://positiveorgs.bus.umich.edu/wp-content/uploads/What-is-Job-Crafting-and-Why-Does-it-Matter1.pdf>
- Brown, C. (2013). The poverty of grand theory. *European Journal of International Relations*, 19(3), 483–497. <https://doi.org/10.1177/1354066113494321>
- Budie, B., Appel-Meulenbroek, R., Kemperman, A., & Weijs-Perrée, M. (2019). Employee satisfaction with the physical work environment: The importance of a need based approach. *International Journal of Strategic Property Management*, 23(1), 36–49. <https://doi.org/10.3846/ijspm.2019.6372>
- Carpenter, S. (2018). Ten steps in scale development and reporting: A guide for researchers. *Communication Methods and Measures*, 12(1), 25–44. <https://doi.org/10.1080/19312458.2017.1396583>
- Colenberg, S., Jylhä, T., & Arkesteijn, M. (2020). The relationship between interior office space and employee health and well-being: A literature review. *Building Research & Information*, 1–15. <https://doi.org/10.1080/09613218.2019.1710098>
- Cooke, H., Appel-Meulenbroek, R., & Arentze, T. (2019). Is the much discussed agility of Corporate Real Estate visible in practice? An empirical study of the relationship between business metrics and surplus property. *International Journal of Strategic Property Management*, 23(4), 227–243. <https://doi.org/10.3846/ijspm.2019.8029>

- Dewe, P., Cox, T., & Ferguson, E. (1993). Individual strategies for coping with stress at work: A review. *Work & Stress*, 7(1), 5–15. <https://doi.org/10.1080/02678379308257046>
- Edwards, J. R. (2008). Person–environment fit in organizations: An assessment of theoretical progress. *Academy of Management Annals*, 2(1), 167–230. <https://doi.org/10.1080/19416520802211503>
- Edwards, J. R., Caplan, R. D., & Van Harrison, R. (1998). Person–environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28–67). Oxford: Oxford University Press.
- Edwards, J. R., & Shipp, A. J. (2007). The relationship between person–environment fit and outcomes: An integrative theoretical framework. In C. Ostroff & T. A. Judge (Eds.), *Perspectives on organizational fit* (pp. 209–258). San Francisco, CA: Jossey-Bass.
- Kane, M., & Rosas, S. (2018). *Conversations about group concept mapping: Applications, examples, and enhancements*. Los Angeles, CA: SAGE Thousand Oaks.
- Kane, M., & Trochim, W. M. K. (2007). *Concept mapping for planning and evaluation*. Los Angeles, CA: ProQuest Sage.
- Kleine, A. K., Rudolph, C. W., & Zacher, H. (2019). Thriving at work: A meta-analysis. *Journal of Organizational Behavior*, 40(9–10), 973–999. <https://doi.org/10.1002/job.2375>
- Leesman. (2020). *The Leesman review 29*. Retrieved from www.leesmanindex.com/leesman-review/leesman-review-editions/review-29/
- Luong, M., Peters, K., von Hippel, C., & Dat, M. (2019). Fitting into the workplace. In O. B. Ayoko & N. M. Ashkanasy (Eds.), *Organizational behaviour and the built environment* (pp. 113–127). London: Routledge.
- Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science*, 10(1), 53–79. <https://doi.org/10.1186/s13012-015-0242-0>
- Repko, A. F. (2012). *Interdisciplinary research: Process and theory* (2nd ed.). London, New Delhi, Thousand Oaks, and Singapore: Sage.
- Rolfö, L. (2018). *Activity-based flexible office work environments: Design and implementation processes and outcomes* [Dissertation]. Stockholm: KTH Royal Institute of Technology. Retrieved from www.diva-portal.org/smash/get/diva2:1265084/FULLTEXT02.pdf
- Rosas, S. R., & Kane, M. (2012). Quality and rigor of the concept mapping methodology: A pooled study analysis. *Evaluation and Program Planning*, 35(2), 236–245. <https://doi.org/10.1016/j.evalprogplan.2011.10.003>
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, 129(2), 216–269. <https://doi.org/10.1037/0033-2909.129.2.216>
- Spreitzer, G., Porath, C. L., & Gibson, C. B. (2012). Toward human sustainability: How to enable more thriving at work. *Organizational Dynamics*, 41(2), 155–162. <https://doi.org/10.1016/j.orgdyn.2012.01.009>
- Tims, M., & Bakker, A. B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology*, 36(2), 1–9. <https://doi.org/10.4102/sajip.v36i2.841>
- Trochim, W. M. (2017). Hindsight is 20/20: Reflections on the evolution of concept mapping. *Evaluation and Program Planning*, 60, 176–185. <https://doi.org/10.1016/j.evalprogplan.2016.08.009>
- Van der Voordt, T. J., & Jensen, P. A. (2018). Measurement and benchmarking of workplace performance. *Journal of Corporate Real Estate*, 22(2), 95–112. <https://doi.org/10.1108/JCRE-10-2017-0032>
- Van der Voordt, T. J., & Van Meel, J. (2016). Culture. In P. A. Jensen & T. van der Voordt (Eds.), *Facilities management and corporate real estate management as value drivers: How to manage and measure added value*. London: Routledge.