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Faculty of Economics and Business Administration

Desk bikes in a corporate environment

Course: New Ways of Working 4.2

Team: 5

Authors: Marina Todorova (2576113)
Raynald Nuñez (2572512)
Jerry Melis (2102064)
Joost de Bruijn (2182645)
Martijn Hermans (2079747)

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Supervisor: dr. M. Agterberg

Introduction

In traditional office environments, fixed sitting desks with standard office chairs are the norm. In The Netherlands over 35 percent of the people sit each day for seven hours or more, mainly at their office desk (Hildebrand, Bernaards & Stubbe, 2013). Sitting and working behind a fixed desk is categorized as sedentary behavior (Dutta, Koepp, Stovitz, Levine & Pereira, 2014). Recent developments in science reveal that sedentary behaviour for a long time is very unhealthy for people and can lead to decreased productivity (Klink, Rosenmüller, Polder, 2008; Trogdon, Finkelstein, Hylands, Della & Kamal-Bahl, 2008).

In the last few years, movement at work has become more and more important in organizations. Relatively young firms such as Google and Facebook have extensive health and movement programs for their employees. Other companies start also experimenting with creating a healthier work environment. Preventing sedentary behavior and stimulating movement results in happier and healthier employees, which could increase the level of productivity (Klink et al., 2008; Mills, Kessler, Cooper & Sullivan, 2007). On the other side it also might lead to reduction in costs for health care and absenteeism (Baicker, Cutlet & Song, 2010).

Furthermore, researchers elaborated on the direct positive relationships between exercise and work productivity. Mills et al. (2007) investigated that engagement in multi-worksites health promotion initiatives led to concurrent increase of self-rated productivity. In a similar vein, Falkenberg (1987) posits that worksite physical activities were directly associated with improved performance levels related to cognitive complex tasks and aging self-rated productivity. This study suggests that physical exercise can positively influence productivity in both short and long run. In the short run, it enhances productivity by reducing symptoms of stress and improving the overall mental state of the employees. On the other hand, in the long run such kind of initiatives enable arousal levels to be more appropriately adjusted in relation to cognitive work and additionally, increase the level of stress resistance. Next to that, physical activity during work hours is thought to improve employee productivity by fostering flexible scheduling of work-related and home activities which leads to minimizing lateness and absence. Another effect is that employees' commitment to the company as one that is conscientious about its employees increases.

In this paper a study at Ahold is conducted. In October 2015 Ahold launched a small pilot in their headquarters with desk bikes and sit-stand desks. By using the desk bikes Ahold hopes to

stimulate employee movement in the office environment. By doing research to the use of desk bikes at work and the influence on work practices, focused at productivity, this paper can contribute to the evidence that moving at work will lead to a more effective organization with and by healthier employees. Based on various interviews and observations the following research question will be answered:

How does the use of desk bikes affect productivity of knowledge workers?

To answer this research question, the question is divided in four sub questions:

1. What affordances and constraints does the use of desk bikes offer for productivity and how do these affordances constraints affect how people work?
2. How does the structuration model help to analyze the interplay between technology and practices?
3. How did the other themes related to new ways of working surface in this study and how did they affect productivity?
4. What other implications does the use of desk bikes have other than the investigated variables?

This research question is relevant both in scientific as in a practical way. Scientific research about preventing sedentary behavior at work is currently mainly focused on the consequences for employee health itself and the costs and benefits for the company. By doing research to the influence on productivity through movement this research can contribute to a whole new perspective on such movement programs at the workplace. This paper provides an initial set of propositions for further research together with a research model on this topic. The outcome of the research question also has practical implications. It gives insight in how productivity will be influenced in a positive or negative way by using tools such as desk bikes to stimulate movement in the workplace. That knowledge is useful for managers when setting up such movement programs: it can help to determine how and if such tools can be used for which types of work.

Theory

In this section provides a theoretical background to support the research. Four propositions, based on the theory, will be formulated. At the end of this section, the research model is presented.

Productivity

Based on the model of Boles, Pelletier, & Lunch (2004), human performance leads to productivity which leads to profits. In order to be able to do research on the effect of the desk bike on productivity it is important to define productivity.

Productivity can be defined as the contribution toward an organizational end result, in relation to resources consumed (McNeese-Smith, 1996). This means that the productivity of an employee is measured as the contribution an employee delivers in relation to the resources he or she consumes. This paper will focus on individual productivity.

There are three ways to increase productivity: Increase output with the same input (improved effectiveness), achieve the same output with less input (improved efficiency) and achieve a relatively stronger rate of increase in output compared with the increase in input (both more effective and more efficient) (Van der Voordt, 2004).

Previous research already revealed that mental health has a positive effect on employee satisfaction (Cooper, Rout, & Faragher, 1989). This suggests that physical health could also have a positive effect on job satisfaction and through job satisfaction on productivity. If employees have positive perceptions and feel better about their job, it can be assumed that they will desire to be more productive in their position (Wattles & Harris, 1997).

In the last few years employees have been encouraged to undertake health promoting activities, such as fitness centers for instance, and other programs that help healthy people in the workplace stay healthy (Schultz, Chen, Edington, 2009). Health promotion activities during working time may be used for enhancing production levels and increasing productivity rates (von Thiele Schwarz, Hasson, 2011). Previous studies proved that ill health among employees is associated with decreased levels of productivity and therefore, prevention from performing at one's best (Stewart, Ricci, Chee & Morganstein, 2003; Schultz, Edington, 2007; Schultz, Chen, Edington, 2009).

Srygley, Mirelman, Herman, Giladi & Hausdorff (2009) suggest that moving while performing cognitive tasks possibly diminishes the performance. However, this is only the case when the cognitive task becomes too difficult. Srygley et al. (2009) also conclude that older people tend to remember the tasks better if they were walking during the tasks.

Brayfield & Rothe (1951) discussed that maintaining or improving muscular strength leads to the execution of tasks with a decreased level of physiological stress. A research by Wattles & Harris (1997) investigated that a group of employees felt more productive at work after performing more repetitions on a bench press test. Most of them noted that after performing this kind of physical activity they were able to relax better at work, think more in depth about problem related to their job, easily concentrate on work related tasks and achieve better work performance. A correlation was found between adherence level with increasing self-perception of job productivity and positive viewpoint towards work (Durbeck et al., 1972).

With regard to cycling, in particular, it is known to be a very energy efficient activity and cycling on a zero-slope with a constant speed (similar to a desk bike setting) could be not energy demanding, but stimulating and productivity improving action (Ege, Krag, Director, Råd & Gade, 2010).

Based on this, the first proposition is:

Proposition 1: Using the desk bike while working has influence on individual productivity

Productivity & health

In general, physical activity at workspace has been reduced due to the availability of new technology devices, which enables employees to remain and stay at their workspace and thus reducing the amount of physical labor needed in order to accomplish their work task (Hallal et al., 2012). Facing this new world at work of increased inactivity and stress, the majority of employees often suffer on productivity issues. Employees usually spend an average of eight hours at their workplace, therefore more employer target to promoting physical movement in their work setting (Proper et al., 2003). However, as mentioned above, the constant movement and simultaneous usage of desk bikes while working has the possibility to not only influence on-going work task and but may also the positive side effect of health (von Thiele Schwarz, Hasson, 2011). In fact, it is no longer subject to debate about the positive effect of physical activity on physical and mental health (Proper et al., 2003). For this reason, it can be inferred that factor of focus and concentration while cycling is enhanced. In a narrow sense, while pedaling the desk bike it makes it impossible to move around and thus get distracted by non-related work. Furthermore, Connell and Grainger (2002) argues in their study that significant benefits of increased motivation and engagement have been observed on activity, which

improves working efficiency and therefore overall productivity. According to a study by Wattles and Harris (2003), it has been confirmed that movement helped employees to be more productive, as it enables employees to be more relaxed, concentrate and think more efficiently about work related issues. Health benefits, such as stress relief or enhanced blood circulation, while exercising on the desk bike are surely other factors to be taken into account, as it helps employees to clear and structure their mind to produce high quality work.

However, by implementing this innovative method of exercise, Ahold takes a step further to foster physical activity and therefore aiming to enhance productivity among employees while working with the desk bike. Ahold placed several “desk bikes”, which are similar to an ergometer, in different departments of the company to enhance physical activity among employees during working hours. In the past, many companies followed the trend of supporting physical activity of their employees by offering physical programs. In fact, Proper et al. (2002), confirms in their study that physical programs at work will benefit the company and business due to overall increased physical and mental condition of the employee. Even though, the positive effect of employees’ health and fitness on the long run is undisputed, this study will not focus on health benefits, as this factor is not the main focus of this research. However, health is a positive and especially not to be underestimated side effect of using desk bikes and therefore had to be mentioned in this research.

To sum up, the implementation of the “desk bike” at Ahold shows to be a “win-win” situation for the Ahold itself but also for the employees, as promoting physical activity while working will have positive effects on employees’ overall physiological and psychological performance, which as a result could lead to an increased work productivity due to an overall better well-being.

Based on this, the following proposition is:

Proposition 2: Using the desk bike influences individual productivity through personal health.

Productivity & onlookers

The ubiquitous use of technology brings up the visibility affordance and due to the visual traces left by technology use, the inactive outside parties might become active human agents and indirectly influence the use patterns of technology (Sergeeva, Huysman, Soekijad & van den

Hooff, under review). Ellison, Gibbs & Weber (2014) studied the affordance of visibility and investigated that the adoption of modern technologies results in increased levels of openness and visibility regarding many work practices. Examples include metadata about who communicates with whom and what exactly is communicated, work progress, joint objects of work.

A study by Chu and Robey (2008) discussed the side effects of the affordance of visibility in terms of restriction of the use of technology. Their analysis revealed how online learning during work hours might be perceived as avoiding responsibility by the co-workers and lead to avoidance of online learning tools use. By the same token, Mazmanian (2013) found that derisive informal interaction, about the way mobile devices were exposed to others, altered the way sales representatives in a footwear manufacturer company held them.

These studies show that not only the people who actually make use of the technological tools define the patterns of use, but also the outsiders who are witnessing the whole process - the onlookers. Onlookers are the outside parties who are exposed to traces of technology use but are not interacting with the technology features themselves. (Sergeeva et al., under review). As a result of the visibility affordance these human agents, although not directly engaged with the tool might actively influence its use.

In addition, people take into account the perceptions of the outsiders which reflect on the way they use the available technological tools. Furthermore, these judgments provoke a reaction among the active users and as a result might lead to alterations in the manner of use of a particular technology.

Based on this, the last proposition is:

Proposition 3: As witnesses of the desk bike use, onlookers have influence on individual productivity.

Research model

The model (figure 1) is a graphical representation of the propositions presented above. It shows the relations between the material, its affordances and the knowledge workers. These relations are expected, based on the existing literature. The model shows that the use of the desk bike could have influence on the individual productivity level. The factors *personal health* and *individual productivity* both have influence on the productivity-effect of the desk bike. An

increase of employees' personal health is entailed while using the desk bike, which as a result motivates people to use the desk bike more often and makes users more productive. This seems to be a self-reinforcing mechanism if it is assumed that personal health is also directly influenced by the use of the desk bike as a side effect. This is identified by the dotted line in the model. However, this paper does not investigate the direct relation between the use of the desk bike and personal health, as the focus of this paper lies on productivity.

This research also foresees the possibility that onlookers can influence the direct influence from the use of the desk bike on the productivity.

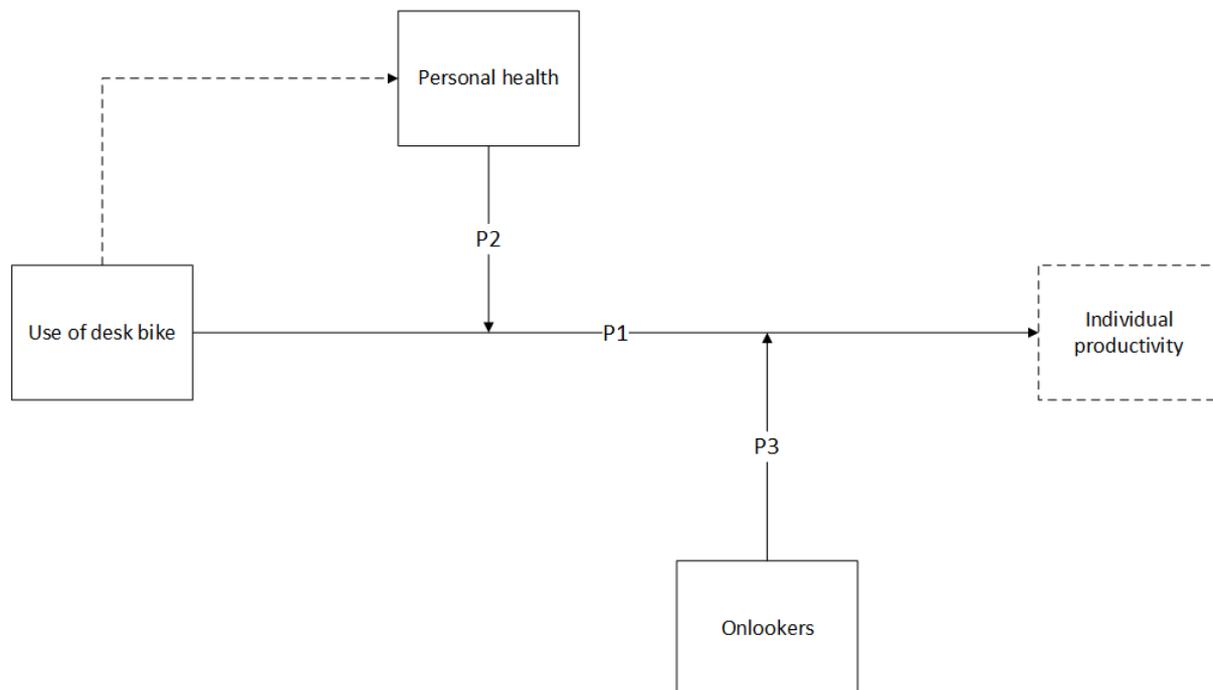


Figure 1: *Research model*

Methods

This paper analyzed the implementation of the desk bikes in the office environment and whether this influenced employees' productivity. Also what the affordances and constraints of working while pedaling at Ahold are. Ahold is a leading retailer based in the Netherlands and active in the United States and Europe. With around 100.000 employees, the company holds supermarkets, convenience stores, online grocery & non-food, wine & liquor- and drugstores. In October this year Ahold introduced a small pilot in their headquarters with desk bikes and sit-stand desks. Ahold's initiative aims to improve the physical activity among its employees

during their working day. There are six desk bikes in total, positioned throughout different departments at their headquarters in Zaandam.

For the analysis six interviews with employees from the organization were conducted, which took place in a timespan of two weeks – five of them took place in person at the headquarters and one was conducted via phone call.

The focus of the interviews was on understanding employees' work practices and their experiences while using the desk bikes. It was investigated how employees are dealing with executing physical and cognitive tasks that are performed simultaneously. This research concentrated on what kind of work-related activities the employees were able or were unable to execute while biking, example questions: *“What is your general perception of the desk bikes?”*, *“What are the advantages and/or disadvantages you observed in relation to the bike?”*, *“Are you able to do their job in combination with it?”*, *“Is the bike facilitating the working process or on the opposite?”*, *“What is the impact on your output?”*, *“Are you better able to concentrate while on the desk bike, or do you get distracted in this setting?”*, *“Are you able to do everything you did in the absence of the bike?”*, *“Which tasks are you able to perform while pedaling and what are tasks you are not able to execute?”*.

The interviewed employees were within various positions in different departments of the organization – a secretary, an online product information specialist, an assistant, a social security, regulations and law specialist and a consultant aftercare.

The interviews lasted from 30 to 45 minutes. It is good to note that some interviews were restricted by the company's policy to a maximum of 30 minutes. Observations were not allowed but the interviewers were able to capture the atmosphere and the setting in the spaces where the desk bikes were positioned during the time of the interviews and the waiting in between.

Prior to collection of the questionnaire data, each of the interviewees was introduced to the details about the project and its main purpose. The interviews began by asking the employees to give a general description of their job and position within the company, as well as the nature of their work practices. Then the respondents were asked to describe their personal perceptions and impressions about the desk bike and its use. There was specific focus on when, how often and why the employees were using the desk bikes. Additional focus was on the perceptions of other people around the office, and if – when present – what the reason was for not using the

desk bike. Finally, there was an emphasis on the advantages and disadvantages of the new technology, moreover what its specific impact was on work-related activities and especially productivity.

After gathering the necessary data, the interviews were transcribed and were thoroughly analyzed. Next, the answers were reviewed in order to define the relevant data across the conversations and to compare insights. These dynamics are examined in further detail in the following section.

Analysis and results

The analysis is based on the four sub questions. The sub questions are discussed in the same order as they are presented in the introduction, but first some general findings are discussed.

General findings

The concept of new ways working at Ahold headquarters highlights three main characteristics of new ways of working namely, open offices, open communication and flexibility. 15 years ago, the workspaces at Ahold were reconstructed to represent the concept of new ways of working by removing boundaries within departments, and thus fostering communication and collaborative working among employees. According to the respondents from the conducted interviews, the workplace at Ahold comprises a workplace capacity for 2200 employees, yet the workplaces are only designed for 1500 employees. Depending on employees' individual job status, employees are able to decide whether to work in private by staying at home, also known as "home office", or work within Ahold premises. Every floor has a different space setting depending on the department located on the certain floor. However, the emphasis on transparency and openness and thus creating social spaces are consistent throughout the offices. By introducing shared and open workplaces, fixed and personal workplaces of employees belong to the past, as every colleague without regard of the level or position are able to sit side by side. What could seem to be unusual working next to the superior, has already become a standard practice among employees at Ahold. Furthermore, it can be observed that more social networks were built and informal interaction increased, because boundaries are no longer existent.

The working stations are equipped with a monitor and a docking station for laptops. However, employees were not any more accessible via landline telephone as no telephones were actually installed on the tables. Only in urgent cases employees used mobile phones to communicate. Communication is mostly conducted via email or direct communication with colleagues.

Ahold, in general, is a very employee friendly company and currently focusing on the well-being and health of their employees. Beside of promoting the healthy lifestyle regarding the nutrition, Ahold also focuses on the actual physical movement of employees during the working hours. Apart from having predefined walking routes for employees to held a meeting or offering an internal fitness program, Ahold called out the pilot project of implementing desk bikes at the workplaces. The project was promoted on Intranet and was further introduced in the atrium of Ahold in order to present the desk bike itself and the benefits to the employees. The usage of the desk bike should not only benefit health but also, as mentioned in chapters above, enhance productivity. To see the desk bike in use, see picture 1, 2 and 3 in the appendix.

Affordances for and constraint of the desk bike on individual work productivity

This section is about the affordances and constraints of the desk bike for productivity. An affordance is a relationship between an organism and the properties of an object that affords the organism to perform a certain action (Van Lier, 2004; Norman, 2013). In the Ahold-case the relationship between the employee and the desk bike creates several affordances. In the first place it affords employees who want to work and exercise at the same time, another more active way to work than they are used to. It seems that this causes some effects on the individual productivity of people. Some of the respondents argue that this alternative way of working helps them to keep focused on their work. This is probably enforced because using the desk bike in combination with other tasks ensures that people have enough to do, which prevent any other distraction.

“When I am not biking, for example, I check my phone for Facebook, WhatsApp or searching the Internet. When I am on the bike it’s a lot easier to focus on one task.”

The extent to which people get extra focus by using the desk bike seems to be influenced by the position of the desk bike in the office. The position of the desk bike in the office environment can be identified to be part of the materiality. In theory people can use the desk

bike everywhere they want in the office because it is lightweight and it doesn't require a complex set-up, but a height-adjustable desk is a requirement. As not all the desks in the office space are height-adjustable, they can't use the desk bike everywhere. So, the possibility to move the desk bike easily within the office is an affordance, but there are some constraints in the environment possible which a user prevents to do it actually.

“It is actually kind of nice, to be positioned with your back to the walkway, so you can't really see the distractions.”

Also, the extent in which the desk bike is established in the social environment of an employee must be taken into account. When the desk bike is unknown or just introduced, someone who uses it attracts a lot of attention from other people. When the desk bike is more integrated in the daily routine, the level of distraction by others declines.

“At the start definitely. Because it's just something you really look at, yet this is already decreasing since you get used to it somehow.”

Working on a desk bike can constrain people from doing complex cognitive tasks. The combination of a physical exercise with cognitive tasks can sometimes lead to a decreased level of individual productivity, which can be explained by the earlier named research of Srygley et al. (2009). This seems to happen in both ways. When people are using the bike too intensive, they have problems with focusing on the cognitive task they are doing which leads to a decrease in individual productivity. But in the other way: when they are supposed to do a very complex task, performing a physical task is too distracting. In such cases the respondents say that they prefer to work at a normal desk. So, the use of the desk bike and individual productivity are mutually influencing each other.

“I can do reading through my e-mails, scheduling appointments or divide tasks within the team. It's useful when you have to do routine tasks or something creative.”

“When you have to work with numbers and formulas in an Excel-sheet for example, it is much more difficult to focus on the numbers [when you are on the desk bike].”

Structuration model

In this section the structuration model is applied on the Ahold-case to analyze the interplay between the desk bike and productivity. First the different components in this case are

identified, followed by an explanation about the relationships between the different components. The structuration model is built by Orlikowski (1992) to examine the interaction between technology and organizations. The model consists out of three components. The first component are the human agents, who could be users, designers or decision-makers. The second component is the technology itself: a material artefact that enables the execution of certain tasks in the workplace. The institutional properties are the third component in the model, including several organizational dimensions, for example business strategies or culture. According to the model, the different components have influence on each other, which is visible in figure 2.

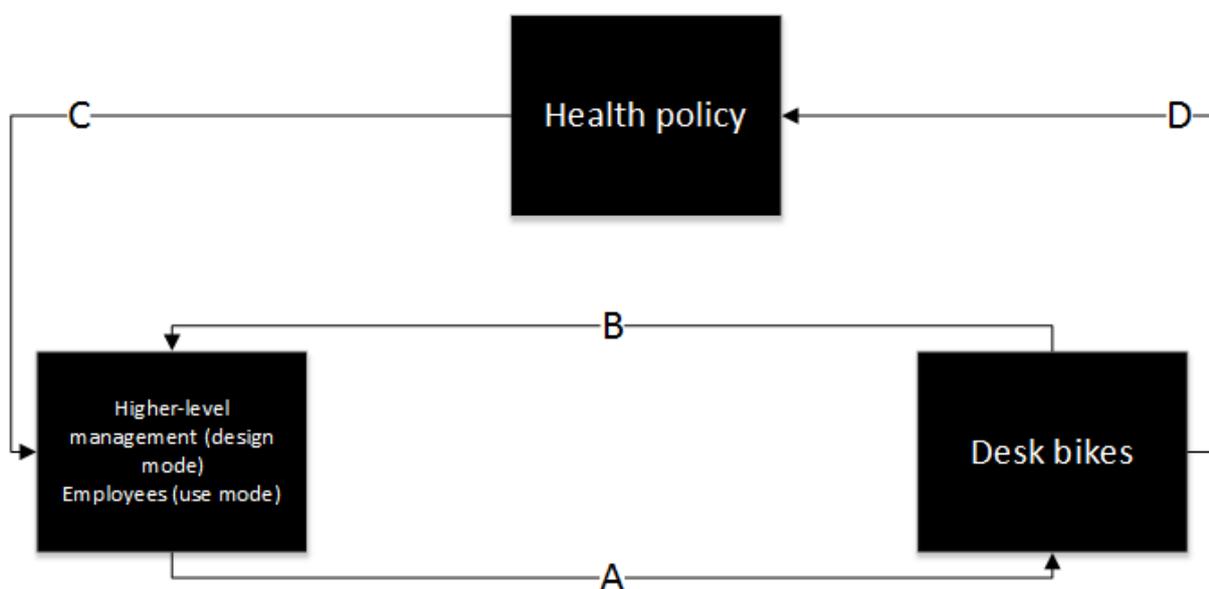


Figure 2: *Structuration model*

In the Ahold-case the human agents are the employees who use the desk bikes, they are the human agents in the *use mode*. Other human agents that can play a role in this case are the higher-level managers in the role of decision-makers and employees who are responsible for installing the desk bikes. They are the human agents in the *design mode*. The technology-component are the desk bikes that are spread throughout the organization. The health policy is identified as institutional property.

The relationship between the different components is as follows in the case of Ahold: The upper-management introduces a policy for a healthy environment for their employees (arrow C), which stimulates movement at the workspace.

“We started a larger program to get people moving. (...) The Netherlands is sitting-nation number one in Europe and it leads to all kinds of diseases in the longer term.”

This influences the focus of higher-level managers who are responsible for the execution of such policies in their focus and decision-making. To stimulate movement according to the health policy, higher-level management decide to introduce desk bikes at the office (arrow A), which enables employees to use them while working. The desk bikes come with several instructions for the users to ensure proper usage (see appendix, picture 4 and 5).

“We want people to be healthier, so what we did was introducing the desk bikes.”

Using the desk bikes has a positive influence on the health, the mood and concentration of the employees who use it, which increases the productivity of those employees (arrow B).

“When I start exercising I feel I have more energy and I’m focused again.”

“I think it could help me with concentrating. Switch in between sitting and standing up, like now that when you start to sag, you stand up for a while and you get an energy boost.”

Because of the positive effects, employees are more likely to use to desk bike. So, in that way the technology facilitates working practices. It not only causes changes in behavior, it also forces the need of changes in the office environment. For example, to be able to use the desk bike, the users need to have a special desk.

“We cannot use the desk bike at every spot we want. A height-adjustable desk is required.”

However, the desk bike is not only facilitating work practices, it could constraint employees, especially when they have to do difficult tasks. In such cases the employees indicate that they prefer a ‘normal’ desk without a desk bike.

“When you have to work with numbers and formulas in an Excel-sheet for example (...) I prefer to use a normal desk.”

When the use of the desk bike is in an environment that is publicly visible, the respondents state they usually neglect the use the desk bike, because they prefer to use it in a more private space.

“It was a little bit uncomfortable, since it was not placed properly yet and everyone could see me use it.”

The situations mentioned above, shows that also environment is an important factor that affords or constrains the use of the desk bike. In the end the desk bike is reinforcing the health policy (arrow D), because the use of the desk bike makes employees healthier and decreases absence because of sickness.

Relation to other new ways of working

Open workspaces, mobility and desk bikes

Ahold provides an open office for their employees. Therefore, employees are flexible to decide where to work. With regard of the desk bikes, employees have the possibility to implement these bikes in their daily work practice. Meanwhile, a total amount of six desk bikes was distributed among departments. The newly introduced desk bikes are designed to be mobile and therefore can be moved around. Yet, the desk bike must be used with an elevated but also movable desk compared to the normal working desk. This implies that the factor of visibility is strongly enhanced, as everyone will be able to observe the employee while exercising and working. Moreover, it also brings us to the aforementioned topic of the onlookers' perspective, which could trigger positive or negative reactions.

“It is unusual and people worry about what the others would think, because they will talk about you.”

According to the findings, the desk bikes were placed in different spots in order to be able to observe where it acts to be most effective and less disturbing at the same time. In one case it was placed centrally among employees, where the user of the bike was able to interact with colleagues while exercising, whereas in other departments, the desk bikes were placed in a more unobtrusive or hidden place to be private while using the desk bike. The opinions about where to use the desk bike were diverse and depend mostly on the user itself, whether to stand out in public or work more privately.

“The colleagues are a little bit angry when you want to use it because it will disturb their own work.”

Beside of open workspaces, Ahold also has private meeting rooms. For instance, Ahold fosters their employee to have their meetings at standing tables in order to avoid constant sedentary.

Connectivity and desk bikes

Every respondent of the conducted interviews stated that the usage of the desk bikes enhanced their focus on performing a certain task. Yet, these tasks were mostly limited to the actual usage of the desk bike and to only one further work-related task. The tasks, however, were mostly bound in working on operational tasks such as answering emails.

“When I am on the bike it’s a lot easier to focus on one task”

Virtual work (video conferences) was mostly done without the desk bike, as employees mostly felt awkward in constantly pedaling while others were just simply sitting. Furthermore, employees were not comfortable with having business talks on their mobile phone while exercising. Employees mostly stopped pedaling when they received business calls. The exceptions were informal interactions with colleagues that were either sitting nearby or passing by as the desk bikes are known among employees and therefore not an uncommon practice anymore.

What is more, Ahold fosters meetings to be held with desk bikes. Ahold is equipping meeting rooms with elevated desks, in order to stand rather than holding a meeting in a sitting position. Therefore, desk bikes can be additionally used during meeting. Thus far, it has not been a common practice due to the small amount of desk bikes at Ahold.

To sum up, desk bikes are completely suitable for open offices as they give you the possibility to choose where to use the desk bikes. According to the respondents, constraints and restrictions are mainly dependent on the user itself, so this confirms what is already known from literature. The factor of self-confidence and health consciousness of the employee plays a crucial role in order to not care what onlookers think about them. In addition, desk bikes do have an influence in connectivity as it rather restricts employees in terms of accessibility as most employees find it difficult to focus on several tasks while pedaling the desk bike.

Other implications

There are more implications involved when implementing the use of desk bikes. One such implication is that the use of desk bikes might increase employee satisfaction and motivation. It shows engagement from the employer to the employee. It is a very visible and tangible addition to the office space. Showing that an employer is willing to invest into its employees’ health and wellbeing. The bikes have an innovative feel and are new to the office. Yet, it has to be taken into consideration that this implication would probably not uphold forever. Given

that interest in new things often decreases with time, habituation could be a factor adding to this.

Conclusion

The use of desk bikes has different effects on the productivity of knowledge workers, both positive and negative. The interviews indicate that the use of desk bikes makes the users feel good about themselves while and after using the desk bikes. The users are also able to conduct several different tasks whilst on the desk bike. Yet, certain tasks were found difficult to combine while pedaling. It was found that the use of desk bikes enhances productivity in several ways. Overall it can be concluded that the desk bike increased the productivity and concentration of the users, all the factors in the research model were recognized by the respondents. The placement generally was a constraint, since the desk bike was not useable with every desk. Yet it was also an affordance that people had less distractions because they were positioned differently than they would when sitting at a normal desk. Based on these findings it can be concluded that environment should be added as a factor in the research model. By using the structuration model, to look at the human agents, technology and institutional properties, the findings became structured. It provided insight in how the findings and the things observed at Ahold were related to each other. Further on, other new ways of working, like conference calls, were difficult to combine with the use of the desk bike, mostly they were found distractive. Other implications of the desk bike show that employees can be motivated when Ahold shows engagement by adding the desk bike into the office environment. All in all, it can be concluded that the use of a desk bike has a high potential to be a successful innovation on the work floor, because of the general positive effect on employees' individual productivity.

Discussion

Theoretical implications

In traditional office environments, fixed sitting desks with standard office chairs are the norm. Sitting and working behind a fixed desk is categorized as sedentary behavior (Dutta et al., 2014). Recent developments in science reveal that prolonged sedentary behavior is very unhealthy for people. It can significantly increase the risk of certain diseases, such as a heart attack or elevated cholesterol (Tremblay, Colley, Saunders, Healy & Owen, 2010). Scientific

research about preventing sedentary behavior at work is currently mainly focused on the consequences for employee health itself and the costs and benefits for the company.

By doing research on the influence on work practices this paper contributes to a new perspective on such health programs at the workplace. This study introduces a conceptual model that includes several propositions which favor the use of desk bikes. The data suggests that using a desk bike not only enhances the personal health of the employees, but it also positively influences their work focus. This is a first step in a new field. Future studies could concentrate on proving this statement with quantitative data that supports this papers findings.

Furthermore, this is a study that acknowledges the important role of onlookers, a point that is also made clear in the paper by Sergeeva et al. (under review). In this research the onlookers negatively influence the productivity of the employees using the desk bike.

Practical implications

This research indicates why it is important to care about the health of your employees. Managers should take into account that a fitter and more focused employee is beneficial for the organization and implementing desk bike can contribute towards that goal. However, it was also found that it is not beneficial for all circumstances.

What became clear in this study is that not all tasks are suitable for execution on a desk bike. Therefore, it could be wise to introduce a small handbook with guidelines and suggestions about the tasks that can be performed and are encouraged on a desk bikes and which tasks can better be done on a regular desk (in addition to the already existing one shown in appendix Picture 4 & 5).

Also, the environment in which the desk is placed, is influencing the productivity of the employee. It is important that the desk bike is not placed in a location that is too central, and it helps when the screen of the computer is placed against a wall. This will limit the amount of distraction for the employee.

Finally, the research indicates that the desk bike should only be placed in certain departments. The desk bikes are not of much use in a department where the employees have a lot of meetings outside the office. This also reveals a new possibility: It would be great when the desk bikes would be installed in a meeting room. Although, a part of the employees might feel awkward to use the bikes during a meeting.

Reflection on research process

The main limitation of this research is that the presented model is not thoroughly tested in different environments, but based on available literature and interviews at a single company. However, the objective of this paper was to apply some of the theoretical perspectives into a real life research project. Despite the fact that the presented models were not empirically tested in different environments, it could be used as foundation for further research. Another limitation was that the interviewees were not able to conduct day long observations, however the interviews were of great value. These day long observations could have also biased the users of the desk bikes as well. The last limitation is that the desk bikes were just introduced at Ahold, so there is a high chance that this influenced the results of this study. A longitudinal quantitative study can build upon these findings, to further test the propositions and aim to see what the long term effects are for Ahold.

This study opens several possibilities for further research. Future research can focus on testing the proposed model in another company to validate it. When the model and the relations within the model are supported at another environment, the model can be used as a framework for organizations which try to enhance the productivity of the employees by increasing their physical well-being.

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Appendix



Picture 1: *Desk bike in use by Joost*



Picture 2: *Desk bike in use by Raynald*



Picture 3: *Desk bike in use by Marina*

Werk je fit met de deskbike

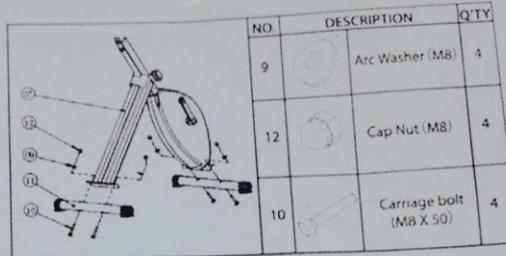
Ga meer fietsen. En niet alleen naar je werk, maar vooral tijdens je werk. Dat kan met deskbike. Terwijl je werkt, fiets je jezelf helemaal fit. En slimmer, want door te bewegen blijft je brein actief en kom je tot geweldige ideeën.

Hoe zet je je deskbike in elkaar?

Stap 1, Buis met wielen monteren:

Maak de buis vast aan het frame met de wielen naar beneden gericht. De Cap Nut (12) worden aan de bovenkant van de buis gemonteerd.

Let op, rolt de deskbike niet goed over de vloer, draai de buis dan 180 graden.

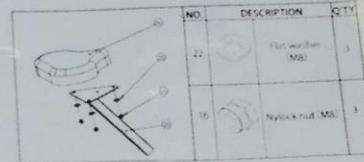


Stap 2, Trappers:

Op de pedaalstang staat een L of R met een pijl in welke richting je de trapper moet draaien. Draai de trapper er recht in met de hand. Gebruik daarna de steeksleutel om hem vast te draaien.

Stap 3, Zadel:

Maak de bouten los onder het zadel, plaats het zadelframe erop en draai de bouten weer vast met de steeksleutel.



Stap 4, Zadelstang:

Plaats de zadelstang in het frame en draai de verstelknop goed vast. Door er aan te trekken, kun je het zadel in hoogte verstellen.

Stap 5, Display:

Plaats de display aan de achterzijde van je werkblad. Let op, als je de display links op rechts van je werkblad plaatst, dan loop je de kans dat de verlengkabel om je trapper draait en knapt.

Druk op MODE voor het aflezen van tijd, snelheid, afstand of het aantal verbrande calorieën. Als het driehoekje knippert, dan wordt om de 5 seconde een nieuwe categorie getoond. Wil je bijv. alleen de afstand zien, druk dan nogmaals op mode en het driehoekje zal stoppen met knipperen. Als je op RESET drukt begint alles weer op 0.



Picture 4: Provided desk bike manual

En nu aan de slag!

- 1 Stel je bureau in. Je werkblad komt tot navel hoogte
- 2 Stel je deskbike in op de juiste hoogte met de verstelknop.
- 3 Stel de display in op tijd, snelheid, afstand of het aantal verbrande calorieën. (Reset deze op het begin van de dag)



Het is niet de bedoeling om de gehele dag te fietsen. Je kunt beter veel afwisselen. 30 minuten fietsen, 60 minuten staan, 30 minuten fietsen enz, enz.

Tip: Lastig om de tijd in te schatten? Koop een kookwekker!

Picture 5: Provided manual 2