

Taking the Lead – Interdisciplinary Approaches from
Science and Practice – Working(time)models –
Working Time is Lifetime?!
Specialist Conference on 7th November 2018
in Güstrow

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Dr. Marion Rauchert

Taking the Lead – the 4th Working(time)models – Working Time is Lifetime?!

This year's leadership conference is the fourth event of the specialist conference series "Taking the Lead – Interdisciplinary Approaches from Science and Practice" at the University of Applied Sciences for Public Administration, Police and Administration of Justice (FHöVPR) for the state of Mecklenburg-Vorpommern. Since 2015 we have been considering through this series the question of how leadership in today's challenges in the workplace can contribute to further develop the knowledge and skills of the employees as well as to promote better health, motivation and job satisfaction. At previous conferences we have addressed critical success factors of good professional development, demands on leaders as personnel developers and leadership in the digital world of work.

The 4th leadership conference of our University of Applied Sciences, under the heading "Working(time)models – Working Time is Lifetime?!", focuses on influencing factors and design approaches of the work itself – with an emphasis on working time.

Working time models regarding their effect on performance, health and social participation are considered, and approaches are demonstrated for how neurobiological processes in designing the work can be taken into consideration. Current findings on requirements, possibilities and effects of work design in different stages of life are put up for discussion, and in this context the last years of profession and the transition to retirement in particular are addressed.

Why do we just focus on working time?

From the point of view of the occupational and organisational psychology work-time belongs to the most important design areas of work. Other areas refer to the workplace itself, the work environment, the work contents as well as the work process, with specific regards to work organisation and work equipment. The objectives of work design can principally be distinguished between entrepreneurial organisational goals (efficiency, quality, costs) and employee related goals. For the latter it is about promoting personal and competence development and to reach job satisfaction, as well as to maintain health and performance capability in the long term. (cf. Nerdinger, Blicke & Schaper, 2014)

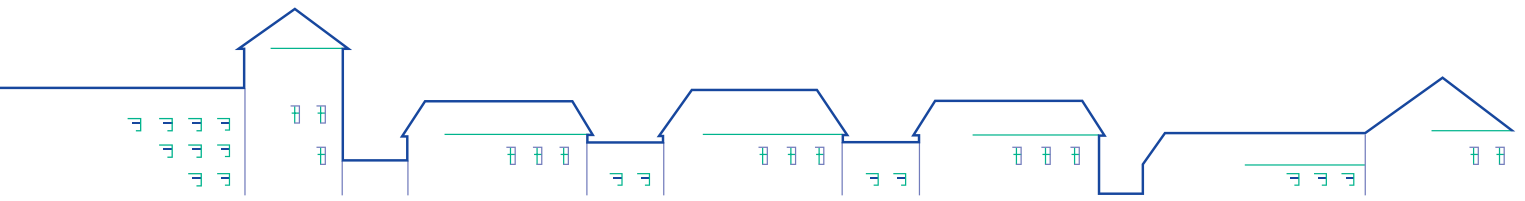
Aspects of the conference topic have already been taken up in thesis at the University of Applied Sciences. Heiko Stegemann – under supervision of Henriette Bohn (lecturer at the faculty of police) - analysed within the context of his bachelor thesis the influence of rotating shift work on the performance capability of police officers.

For the analysis it was assumed that the night shift and the disorder of the circadian sleep-wake rhythm resulting from this do not only influence the mood of police officers, but also, in particular, that the ability to concentrate and the abi-

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lity to react are impaired. In order to determine the effects, tests on four service groups of the police inspectorate of Güstrow were carried out - once during the day shift (3 p.m.) and once during the night shift (4:30 a.m.), age- and gender-related particularities were also analysed.

In order to determine the mood, the mood state questionnaire ASTS (current mood scale) was used - which is a German abridged version of the "Profile of Mood States" (POMS). For testing the concentration, the d2 attention-strain-test by Brickenkamp (2002) was performed. The reaction time was checked at the computer by means of a self-constructed reaction time test. In this the reaction length to a visual stimulus was measured. Furthermore, the age and gender of each test subject was collected.

The sample consisted of ten women with an average age of 32 years and 15 men with an average age of 41 years. They were checked both during the day and night shift. In order to compensate learning effects, a cross-over design (Fig. 2) for the four service groups was used.

The findings illustrate that the disorder of the circadian sleep-wake rhythm has no significant influence on grief, hopelessness and anger. However, there are significant changes in the form of an increased feeling of tiredness and a decreased positive mood.

Actually, both reaction time and concentration performance during the night shift changed significantly. While the reaction time is extending the overall performance concerning the concentration performance; i.e. the quantity of the processed signs, is generally decreasing, while errors are increasing. Even if the results from the experimental design of a test where you have to mark the answer with a cross cannot be easily transferred in the police service, this is surely a result which should

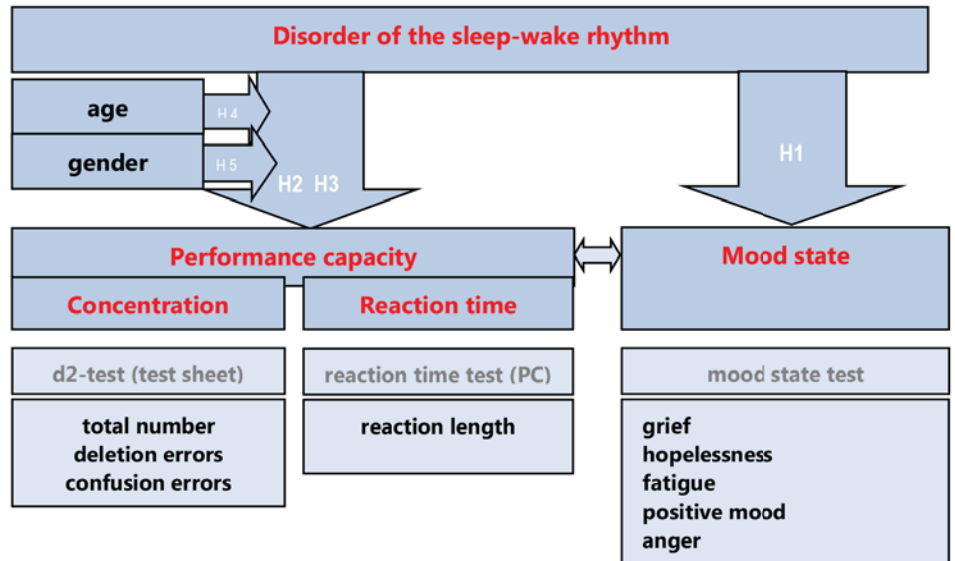


Fig. 1: Research construct with relation to factors, hypotheses orientation, test methods and operationalized variables. (Source: Stegmann, 2013)

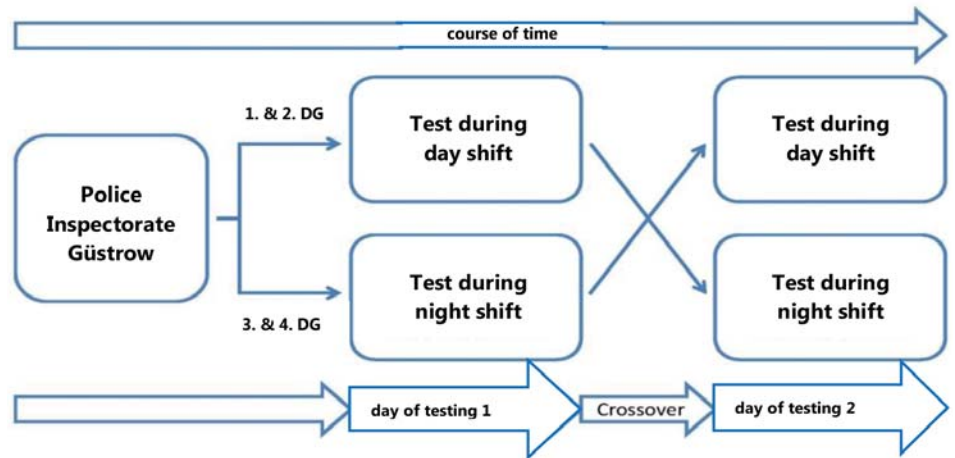


Fig. 2: Cross over study design and sample. DG = service group (Source: Stegmann, 2013)

be taken seriously. The effects of a disordered sleep-wake rhythm can be seen independently of age and gender.

The proposals which could be formulated to alleviate the effects were made both to the employer and the officials themselves. Stegemann proposed - regarding the design of shift work - an alternating shift system with a maximum of three same shifts in succession, ideally forward oriented (FFSSN), because these ones are easier to cope with. Concerning the work environment, he spoke for illuminating the rooms with at least 2500 lux in order to simulate the daylight because daylight brightness delays the nocturnal minimum of the body temperature, and thus also the need for sleep. Furthermore, service sports, advanced training opportunities and police medical precaution in dealing with the effects of a disordered sleep-wake rhythm should be supported and demanded appropriately by the leadership.

On the part of the officials themselves, Stegemann urged adherence to the principles of sleep hygiene; i.e. dark, cool and noise-reduced bedrooms, no caffeine and no heavy meals before bedtime, as well as food rich in carbohydrates at the beginning of the shift. The latter increases the body temperature and heart rate, and hence reduces the feeling of sleepiness. The officials themselves should undertake sports or movement in addition to quietness and recreation during leisure time as support in regulating the circadian rhythms as well as metabolism, and with regards to a responsible handling of the inevitably disordered sleep-wake rhythm taken seriously.

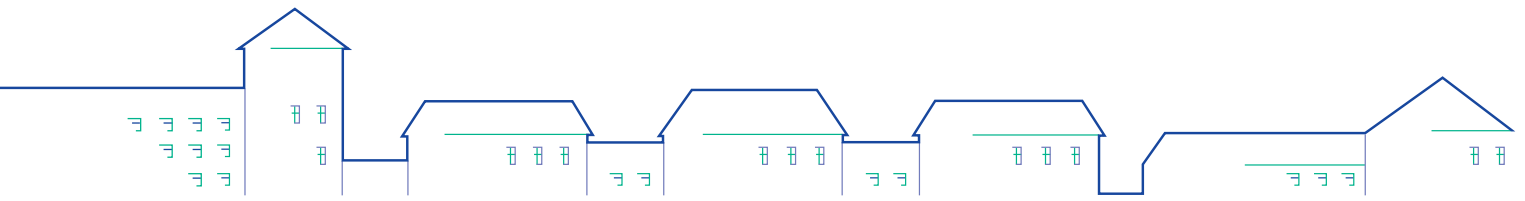
It is not the objective of today's conference to favour or refuse a particular working(time)model. The event rather provides a forum in order to inform about current research findings in the area of work design, work models and their (assumed) effects, and to discuss relevant leadership issues on a scientific basis. I wish you, dear leaders from administration, police service, science and economy in Mecklenburg-Vorpommern, actors in human resource management and partners of the FHöVPR M-V, an interesting conference and many profitable findings!

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Welcoming Address of the Interior Minister

Dear Doctor Rauchert,
Ladies and Gentlemen,

Well, that was a nice surprise you have come up with, to let me of all people speak to a leadership conference.

My own staff is still scared stiff even now from the last leadership conference at my house.

To put some life into the debate I would like to present – just for fun - a couple of quotes of my speech which I gave to my own leaders. Then the speakers will have a lot to talk about later.

What has my staff written down here?

Oh well: "If nobody complains it will have been quite good."

And this one here I also like:

"Whether ministry official, employee or police officer – I am the big boss and I will remain."

But don't worry, Mrs. Rauchert, I will not give the speech again today. I also move with the times and I know, of course, that in the face of demographic change, staff shortages and changing demands of the employers we cannot continue like in times when I completed my training.

It is a hard truth. There's nothing to be done.

Yes: The competition for high-performing employees has, of course, already begun and, for sure, will intensify in the coming years.

Many of you may know the new campaign of the state: "Now I have an affair of the state" – with this and other advertisements we recruit young people.

In the state police service alone we have to train replacements over the coming years for 1,000 civil servants who will soon retire from service. Added to this there are further police officers who we, among other things, want to bring on the roads of the state with the Pact on Security.

That is to say: The state has to train about 1,400 new police officers by 2021 – a strenuous effort, especially for you and your staff, Mrs. Rauchert, I am well aware of that. But we will not lower the standards of recruitments in the police service – in doing so; we would not do a favour for the police and the citizens.

The problem, however, concerns the whole state government, and moreover almost every company I know.

Beyond the age structure, here in the East we have the particularity that especially in the 1990s many people were recruited. Over the coming decade, this will involve a huge wave of retirement. For the state administration I can say that we therefore will have to replace twice or even three times as many personnel from 2020 onwards.

With such a labour market it is obvious that young, high-performing junior employees can choose their employers. No longer does only the classic "money and safety" count as relevant criteria, but also the working climate, the working hours, and, of course, how interesting the field of duties are.

There is a lot of change. And that's why the transfer of experienced-based knowledge – as you will certainly have afterwards – is so important.

For the University of Applied Sciences, I can say that - as a competence centre for personnel development in cooperation with the individual agencies – it excellently trains the urgently needed junior employees.

The young women and men are excellently qualified. We feel and appreciate this anew in the administration, police and justice every day.

And with more than 1,000 students and trainees, so many more junior staff than ever before, follow their career path into the future. The federal state government also invested in advertising and public relations for the public service in the federal state – one of the poster campaigns I had already mentioned.

Furthermore, the career portal of the federal state government as a central point of contact for all interested parties is an important step in the right direction.

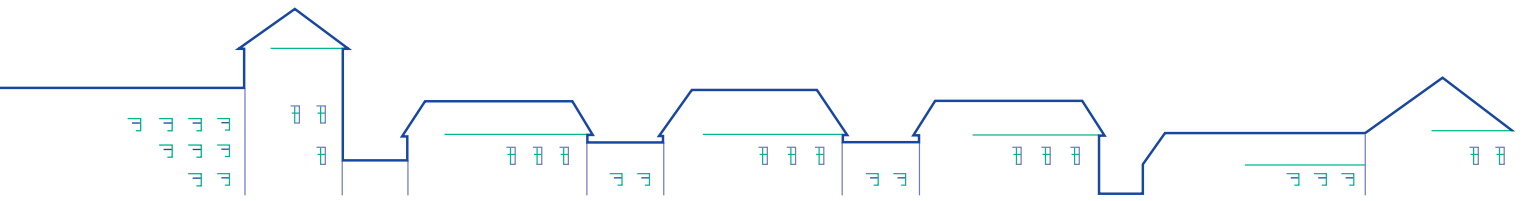
With regards to working conditions, health management plays a considerable role. The significance of this issue has risen strongly in the federal administration over recent years.

Not only do we want something as employers: Namely that new people come to us due to a good working climate. But we as employers also want to offer something to our employees and respond to their current needs as much as possible.

As an example, I would like to mention this year's health conference at the University of Applied Sciences, at which 130 employees and leaders from the administration, the police and researchers and teachers participated.

It was about dealing with risks of psychological stress and by means of some key words you are already able to understand what the conference was focusing on:

"Not disease-oriented, but health-oriented; not other-oriented, but self-oriented; not deficit-oriented, but growth-oriented."



In short: A real paradigm change on how we must deal with risks of psychological stress.

Also the employee-superior issue is an important one. If the relationship is disrupted it will quickly become apparent in the form of dissatisfaction, loss in performance and even sickness. That absolutely would not help anyone.

That's why we have introduced the staff appraisal interview in the state administration.

I know these interviews are not always easy. But it's worth it.

But, of course, on both sides there must be the awareness that objective criticism is no personal attack.

This change in mentality in some constellations is certainly not a process which can be achieved overnight. But there are seminars exactly like these in order to get there.

In the end both of them benefit from a conversation that is as open as possible: To improve things in the interest of both parties – better workflows and results on the one hand, more security and satisfaction on the other hand.

And for this, you, the leaders, are encouraged to fulfil your role as personnel developer.

The state police service often goes further than the state government as a whole; this is also the case with staff leadership.

Thus, the leadership and team feedback is also implemented. As the name indicates, leaders and employees regularly give each other feedback about what is going well and what is not.

The crux in case of missing feedback lies in the fact that it is not that obvious in everyday life. Leader and employees simply do not know what the other party has not told you or even pretended.

Regular feedback talks are all the more important, especially in times of increasing digital communication.

Ladies and Gentlemen,

There are many other measures which we have taken in order to make the public service more attractive, in order to promote the health of our staff members and to ensure the reconciliation of work and family life. Examples include flexible working hours, part-time employment or teleworking.

The public service compared to companies in the private sector is not so inflexible as is always commonly claimed.



Lorenz Caffier, Minister of the Interior and Europe for the state of Mecklenburg-Vorpommern

Afterwards you will surely discuss in detail to what extent all these measures will contribute to achieve our lofty goals.

My statements at the beginning of this conference should make once more clear which challenges we are faced with in everyday life. I know that many employees in administration, the police, and the economy often have to work under high pressure to perform. I also expect a great deal from my staff members, this I can openly admit.

The boundaries between work and private life disappear. And apart from time flexibility, content-related agility and professional mobility are expected. And we should know very well the effects of this on us and our employees.

It is up to you now, our leaders and actors in human resource management, to provide your staff orientation and assistance through these changes.

Thus, the adaption to new challenges is not only a question of structures – there we have already done a lot. But it is at least also a question of the administrative structure – for example the staff appraisal interview.

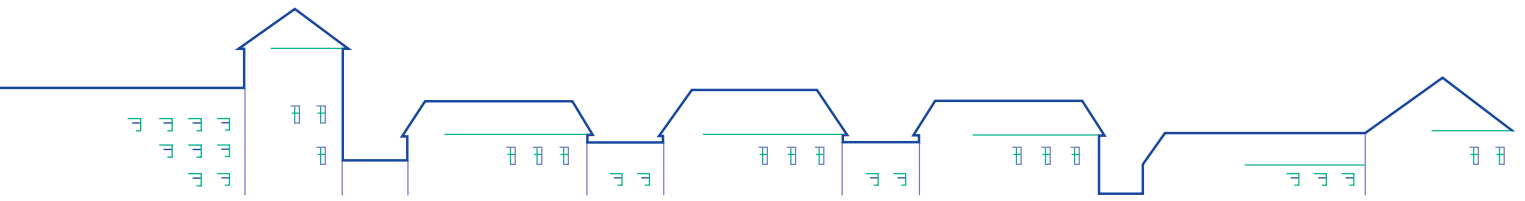
And particularly the public service is heavily affected by the change. In former times everything went according to the rules. But today it is more a matter of results-oriented administration. This is what I also expect from my staff. Because, as the minister, it is my task to set the political goal. For the implementation, I have got experts. I want to see results.

Of course, I am not much interested in whether it is difficult or easy to implement my targets. On the other hand, my leaders are able to work creatively and largely independently.

And in this sense I am perhaps still again a more modern leader than I sometimes think of myself and as I described at the beginning. What we need is a climate for change. To manage this in the individual agencies is your leadership task.

Thus, today it is a good occasion that together we can inform and exchange about current research findings. It does not matter whether in case of work design, work models or their effects.

I wish for us all that we can get many ideas for our work.
I wish you success!



Working Time Models and Their Effects

Dr. Anna Arlinghaus

Working time design as an element of the work design

The duration, location and distribution of working time directly influence the duration, location and distribution of the workload which has an effect on the employees during work. In this way the working time design directly influences the effects of the workload and is – aside from the design of the intensity of labour – an important component of the work design.

Furthermore, working time also determines the non-working times which can be used for recreation, sleep, social issues and family. If the work time is extended there will be less time for personal life, and work at night only allows sleep during the day. Thus, the working time design has a significant effect on recreational opportunities and possibilities to social participation which in turn are reflected in health and social impacts. In the following, different characteristics of working time and its health and social impacts are outlined in order to derive organizational recommendations for working time and shift models afterwards.

Characteristics of working time and its effects

Duration of working time

Long working hours are associated with high risks – with regards to both the daily and weekly duration of working time. Thus, the sharply increased risk of accidents from the 9th working hour is well-documented (see Fig. 1, Fischer et al. 2017). According to this current meta-analysis the risk of accidents during the 12th working hour is already twice as high as that of working after the 8th hour. These findings are average estimates of several studies - they are therefore not branch-specific. The workload was not modelled either – according to theoretical modeling it can therefore be assumed that a high load (e.g. physically or mentally demanding work) causes an increase in the risk earlier, while an otherwise less demanding work of more than 10 hours (e.g. with a high level of standby duty) is also likely to create acceptable risks.

Also the duration of the weekly working hours is associated with health and social risks. Thus, the proportion of employees with health problems increases almost linearly with increasing weekly working hours and the perceived reconciliation of work and private life decreases (Witz 2010). At the same time, intervention studies could show that a reduction in the weekly working time is connected with an improvement of subjective perception of stress, sleep and sick leaves (Pfeil et al. 2014, Schiller et al. 2017).

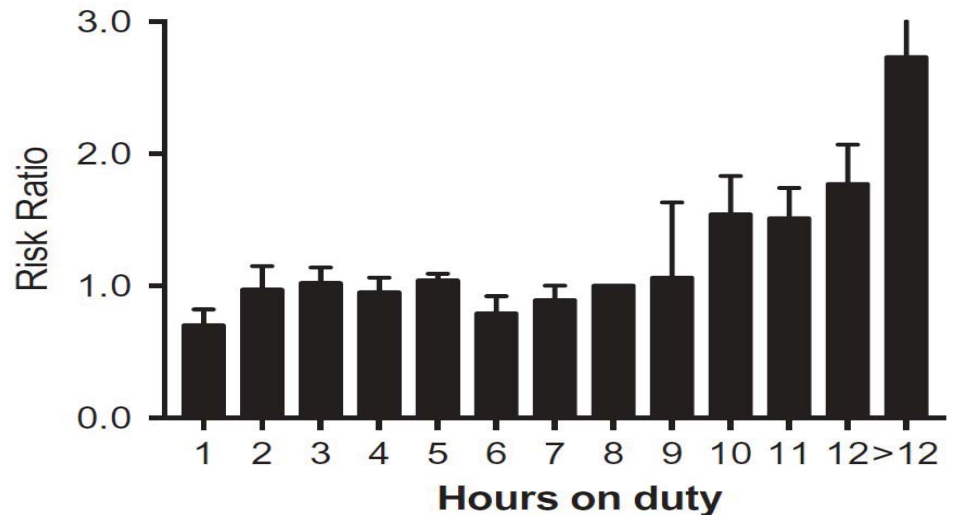


Fig.1: Duration of the daily working time and risk for accidents and human errors (from Fischer et al. 2017)

Location of the working time and shift work

The human biological rhythm determines (aside from external zeitgebers, such as light) the sleep and wake phases. The human being as a living creature is attuned to activities during the day and to sleep during the night. Performance reaches its peak during the morning and also food intake is better during the day than at night. Working hours which run asynchronously with this rhythm, such as night work, thus cause health and social risks. This is reflected in an increased risk of accidents at night, sleep disorders, gastrointestinal problems and impairments of social participation (e.g. Arendt, 2010).

Aside from the biological rhythm there is a stable social rhythm - at least in our western society - which normatively sets the times for activities of social participation in the evenings and on weekends. If people are asked which times they assess as especially valuable for different social and family activities, there has been a stable rhythm for many decades at which the usability of evening and weekend hours is rated the highest (fig. 2). This "social rhythm" has not changed despite efforts towards a 24-hour society. Working in the evenings and on weekends consequently cuts into socially valuable hours and is a risk factor for social participation (Greubel et al. 2016; Wirtz et al. 2011), especially when these "unsocial" working hours occur frequently (e.g. a whole week of exclusively late shifts).

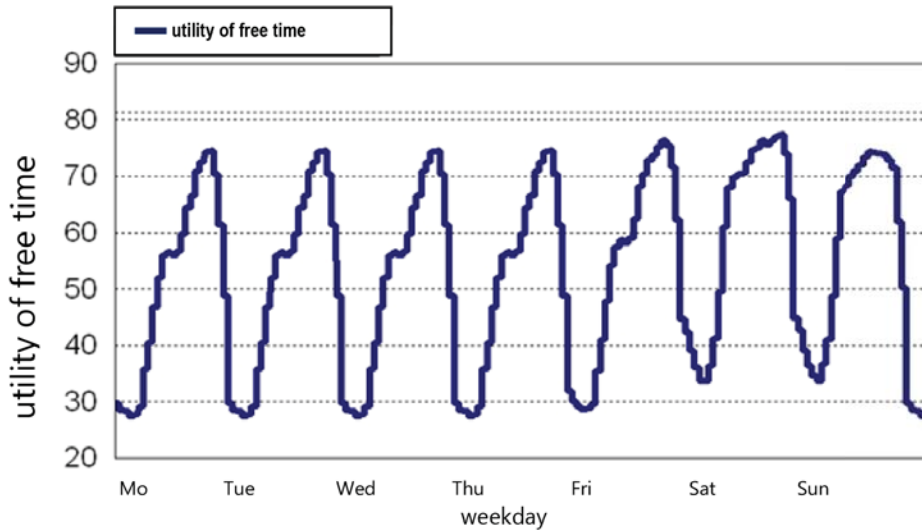
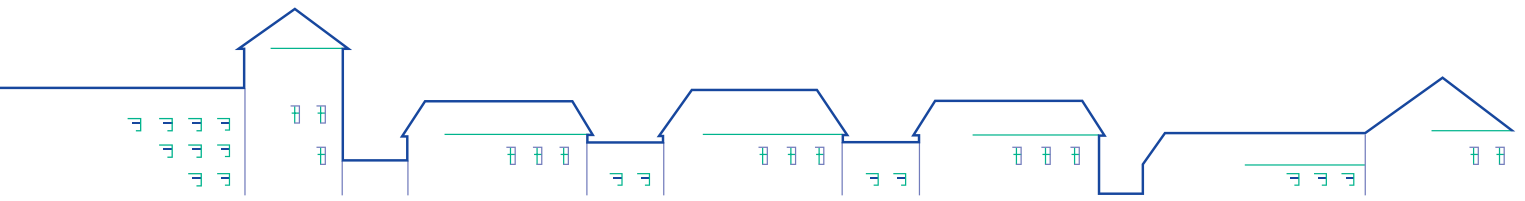


Fig. 2: Subjectively assessed utility of free time according to Hinnenberg et al. (2007)

Flexible working hours

“Flexible working hours” is understood as a continuous choice by the companies and/or employees regarding the determination of duration and/or location of the working time (Costa et al. 2003). Thus, the working time can either be set by the companies (e.g. on-call work) or, such as in the case of trust-based working time, determined by the employees within the framework of company requirements. However, there are a large number of intermediate forms, such as flex-time, flexible shift schedules or different models of working time accounts. As a result, such flexible working hours can be relatively inflexible as to the duration and location of working time, or show high variability (self- or other-determined), and thereby can be known regularly or irregularly, long or short in advance. Flexible working hours can show phases of long and unusual working hours, such as working in the evening and on weekends which, in turn, are associated with increased risks to health and social participation (Arlinghaus & Nachreiner 2017).

The effects of flexible working hours depend on which kind of flexibility there is (self- or other-determined), how regular or variable the working time is, and whether there is flexibility in combination with shift work or not. In Fig. 3, for example, the result of a survey of employees with flexible working hours is shown, in which the effects of shift work, variability of working time and ability to influence the working time, to reported sleep disorders of the employees were calculated separately or in combination. As shown, people working in shifts (S+), with high variability of working hours (V+) and low influence opportunities (I+) mentioned sleep disorders most often, whereas people with regular working hours without shift work (S- V-) suffer from sleep disorders the least.

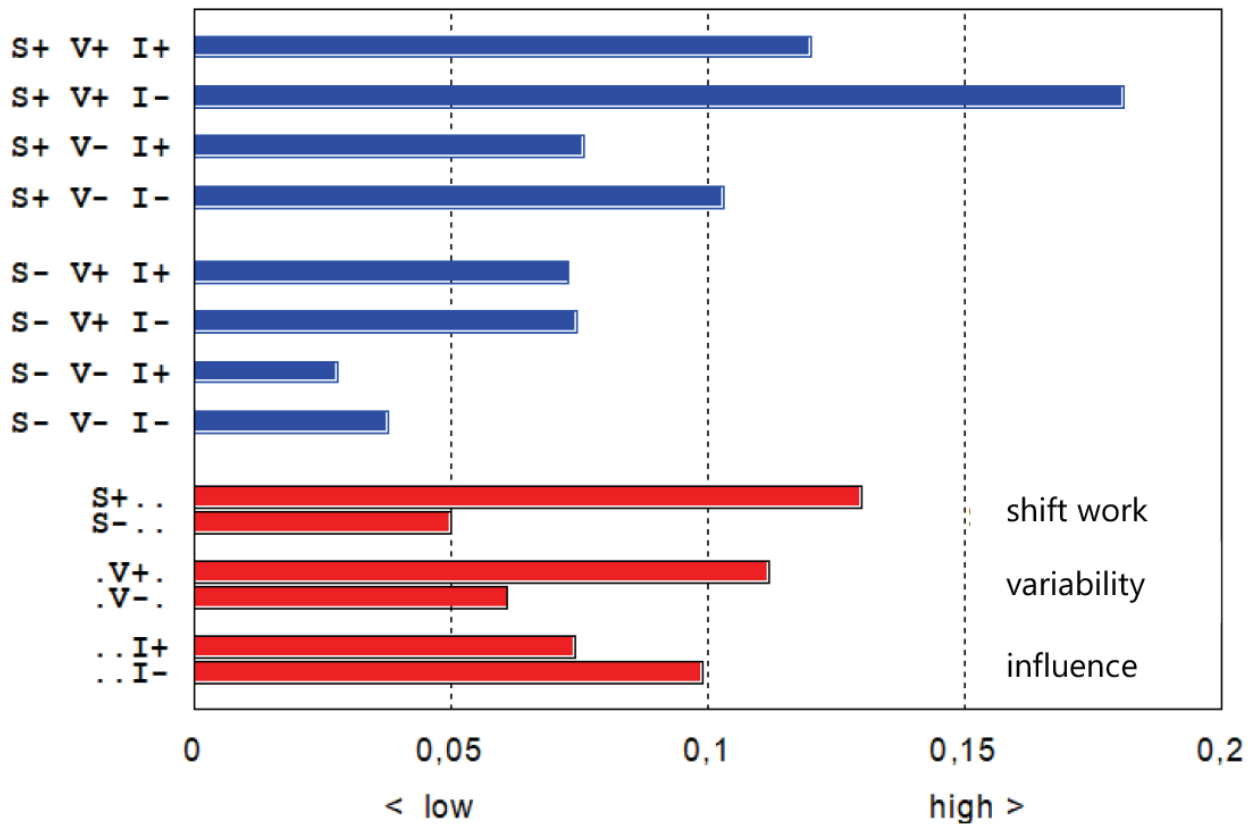


Fig. 3: Extent of sleep disorders (factor values) depending on shift work, variability of working time and influence on working hours (according to Costa et al. 2003). S+: shift work; S-: no shift work; V+: high variability of working hours, V-: low variability of working hours; I+: high influence on working hours; I-: low/no influence on working hours; high factor values mean more frequent sleep disorder.

Work-related availability and blurring of boundaries

In some jobs it is necessary that employees are also available outside their regular working hours. However, there are grey areas in which there is no explicit availability demand (e.g. no on-call duty), but employees still believe they have to be available. Work outside working hours, however, is associated with increased impairments to health (see Fig. 4), and the situation of on-call or standby duty itself is associated with increased feelings of stress and decreased recreation – even if you are not called (Dettmers et al. 2012; Ziebertz et al. 2015). That's why such standby/on-call work should be minimized, and clear rules should be established as to what times and to what extent employees should actually be available.

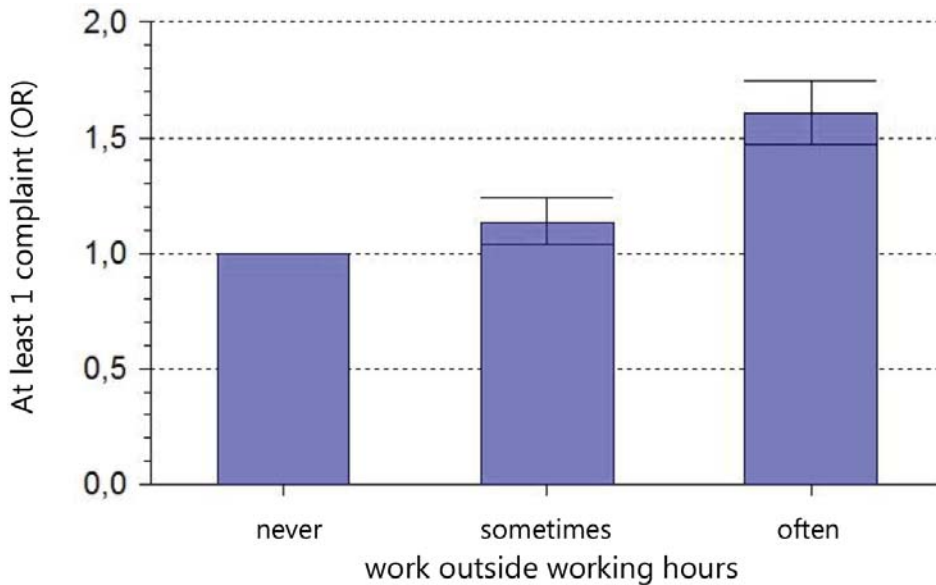
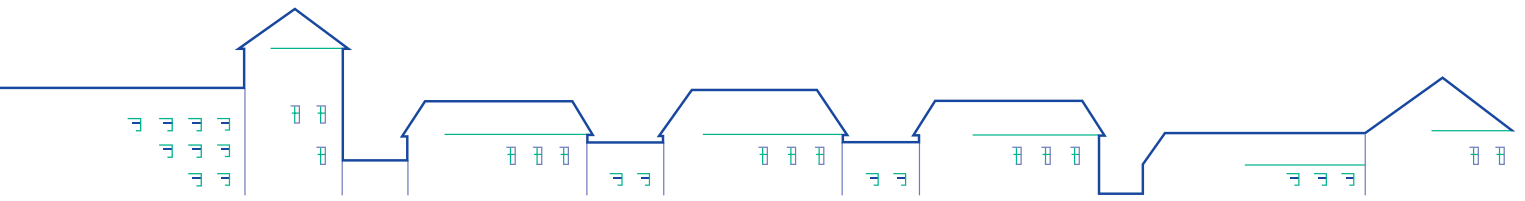


Fig. 4: Work outside regular working hours and risk of at least 1 impairment to health (from Arlinghaus & Nachreiner, 2014, European survey about the working conditions 2010, 31 countries, n=34.399), OR = Odds Ratio (relative risk, 1=reference) with 95 % - confidence intervals.

Influence on working time as resource

In various reviews evidence was found that the possibility to influence one's own work time design has positive effects on health, satisfaction and reconciliation of work and private interests (Amlinger-Chatterjee 2016). However, such self-chosen possibilities do not seem to fully remove other negative effects of the working time design, but at best only reduces them. Let us turn back to Fig. 3 once again: When there was no shift work, variable self-determined working hours (S-, V+, I+) came off similar to variable other-determined working hours (S-, V+, I-). This indicates that self-chosen and variable working hours are not necessarily assessed as being more favourable than those determined by the company. Also in an analysis of data of employees in the EU, regular but other-determined working hours, were associated with a reconciliation of professional and private life almost as good as irregular ones, connected to irregular but self-determined working hours (Wirtz 2010, see Fig. 5).

In a study of the police it was reported that self-determined and very flexible shift models have improved reconciliation, but on the other hand, worsened work-related structures, and have a negative effect on the climate of the organization, such as trust and support (Bürger & Nachreiner 2017). Shift models which had a self-determined and flexible number of shifts, but were otherwise predetermined, came off better (ib.).



Dr. Anna Arlinghaus, graduated psychologist, researcher of working time, Vienna

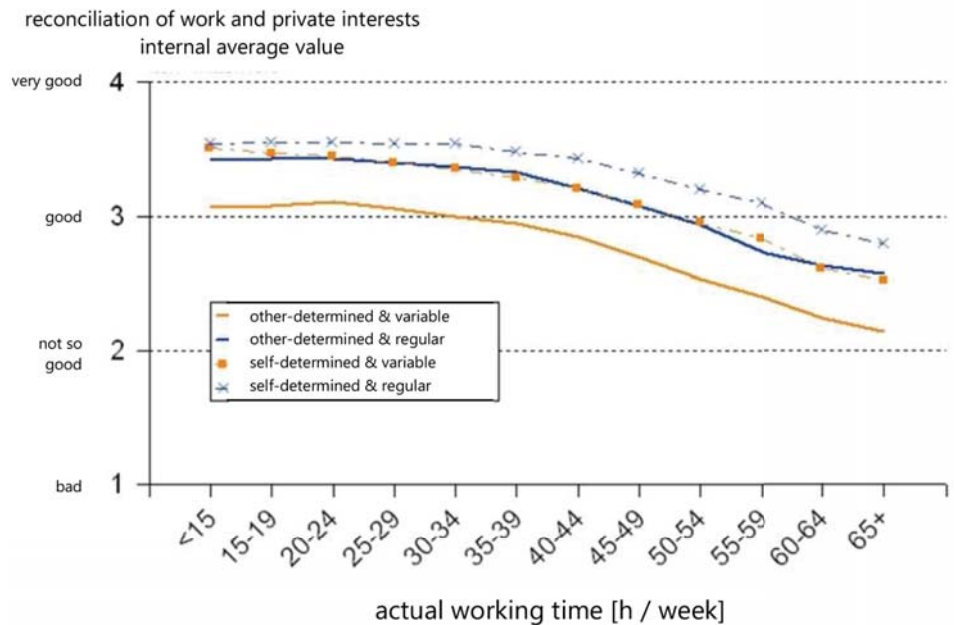
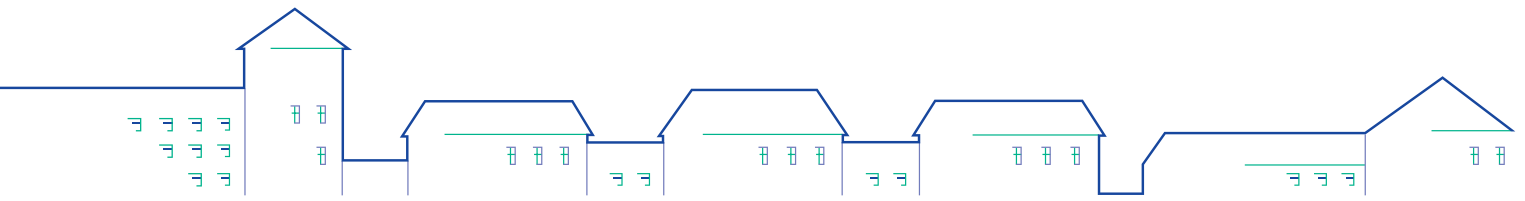


Fig. 5: Reconciliation of work and private interests depending on weekly working time, influence on working time and variability of working time (from Wirtz 2010 p. 148, European survey about the working conditions 2000, 15 EU countries, n=17.910)

Working lifetime

Health effects of the working time design, such as those of shift work do not directly emerge but become apparent in the medium- and long-term, making it difficult to treat them as early as possible. Thus, the time in shift work can be divided in phases, which are illustrated in Fig. 6 (Gärtner et al. 2008). Very soon after the beginning of shift work, it becomes evident which people are able to cope with shift work and who is not able to cope with it. The latter drop out again fairly quickly so that the dropout rate in this adaption phase is high. An already selected group of people, who principally are more or less able to cope with shift work, remains. In the following period - the sensitization phase - impairments are rarely visible, but there is a danger of developing coping strategies; for example, sleep problems, which are risky for the health, and to not have them treated. Only after 15 years, in the accumulation phase, are impairments identified and then occupational healthcare interventions necessary, such as treatment for sleep disorders or a reduction of working hours. If there is no response to impairments in this phase, (seemingly suddenly) chronic diseases (e.g. sleep disorders - also on free days, gastrointestinal or cardiovascular diseases, or diabetes) can appear in the manifestation phase, which often make it impossible to stay in shift work or night shifts, or even lead to being unfit for service.



A preventive working(time)design already from the beginning of career entry can have a very positive effect on the process. As, for example, Bockelmann et al. (2016) shows, drivers of public transport showed an unsuitability for driving up to six years later when they had worked in an ergonomically designed duty roster rather than drivers in an unfavourable work schedule.

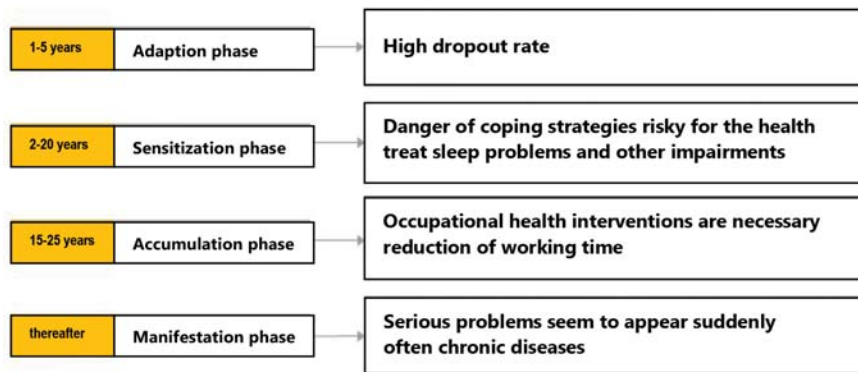


Fig. 6: Long-term effects of shift work (according to Gärtner et al. 2008)

Designing working time well

A healthy and socially compatible working time design takes ergonomic recommendations into consideration; such as those, for example, provided by the Federal Institute for Occupational Safety and Health for designing shift and night work (Beermann 2006):

- as few night shifts as possible or distributed to as many employees as possible
- max. 2 to 3 consecutive night shifts
- max. 5 to 7 working days in succession
- fast rotation (only 2 to 3 same kinds of shift in succession) and forward rotation of shifts (change from Early to Late to Night, e.g. EELLNN--)
- equal distribution of work and leisure
- sufficient time between shifts, especially an adequate recovery time after night shifts (> 48 h, not night – free – early)
- as many free weekends as possible (Saturday and Sunday for social resynchronization)
- sufficient time per week for social purposes
- adjust shift length to workload (shorter shifts at high workload)
- allow employees to influence work times, e.g. flexitime, choice/exchange of shift duty

High stress periods should also be compensated through temporal relief, e.g. time surcharges instead of financial allowances for overtime and night shifts (Arlinghaus & Nachreiner 2017; Gärtner et al 2018). This relief should occur as close

in time as possible to the workload in order to support and enable recreation. In a recent report of the Hans Böckler Foundation (Arlinghaus & Lott 2018) a series of measures are named and illustrated by practical examples which can be used to design shift work; such as, for example, flexitime and part-time (also in shift work), measures for the organisation of work, and the introduction of time sovereignty for the employees.

Working hours need to be taken into consideration in cases of risk assessment, but it is often not implemented in practice. Only 51 percent of all companies carried out a risk assessment in 2015 and from that only half took working hours in cases of assessment into account (BAuA 2016b). As a whole, the working time in terms of risk assessment is only included in a quarter of the companies. Meanwhile, there is assistance for companies in the form of checklists such as the BAuA¹. Tools for the analysis and assessment of working hours are also available, e.g. embedded in a shift scheduling software like XIMES SPA – Shift Plan Assistant², or as a separate solution like XIMES accident risk calculator sponsored by the AUVA (General Accident Insurance Institution – the Austrian Accident Insurance) will freely be available for individuals at www.eval.at from spring 2019.

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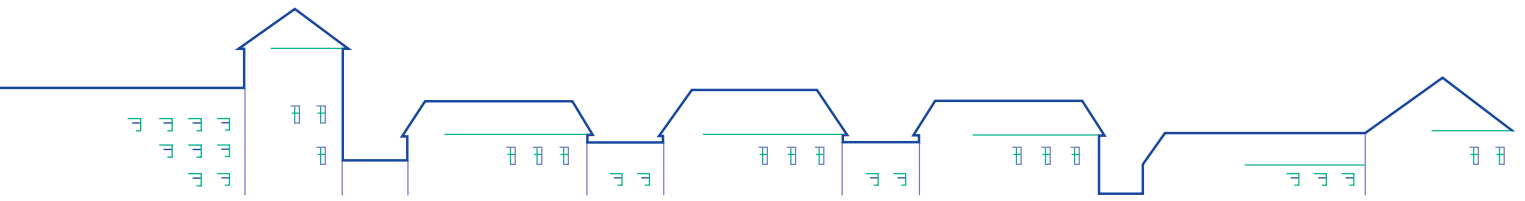
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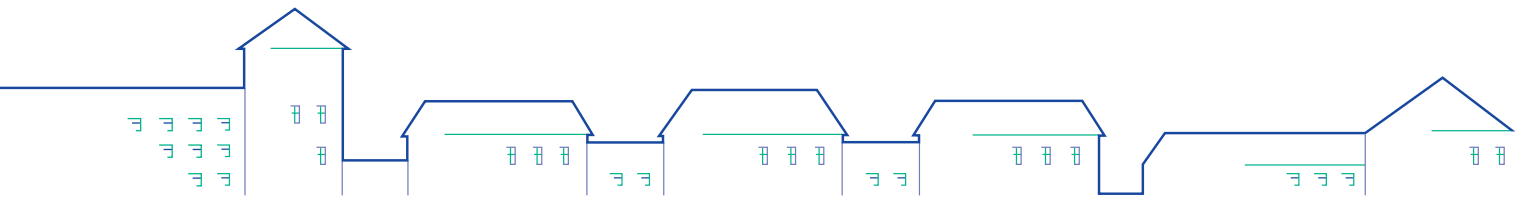
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Why We Work: Remarks of a Brain Researcher to Motivation, Aging Brains and Working Time Design

Prof. Dr. Martin Korte

Who benefits from praise?

The quote by Helmut Schmidt: "Those who have apparitions should go to the doctor" has become famous. Some heads and also some colleagues think similarly when it is about praise. They avoid it like the hygiene specialist.

But praise is a fascinating issue, it does not actually always have an effect on all and often has a different effect than you think or intend. Thus, permanent, uncritical praise completely fizzles out for trivial praise – it might even have a counterproductive effect because it devalues the praise in situations where it rewards an excellent performance which is seriously meant. On the other hand, people have social brains and nothing reinforces human actions and our willingness to commit more than social rewards like attention and appreciation. We particularly react sensitively to authentic praise from peers like colleagues or fellow students. Superiors or teachers consider that even individual attention can already improve the motivation; sometimes eye contact is enough to have a motivating and performance-enhancing effect. In short, praise in the context of increasing motivation is complex, complicated and confusing.

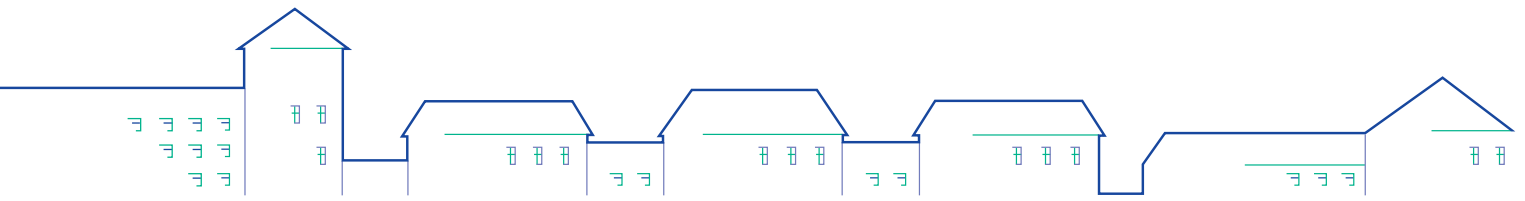
This is also shown in a recent study carried out at the University of Konstanz. It shows that praise does not always encourage people who have been praised but rather those who have not received appreciation. This time around students who had taken part in real seminars were the test subjects. In order to successfully complete these seminars the students had to write two tests. After the first test the professors praised in front of one of the study groups the performance of those 30 percent of students who had achieved the best results. In a reference group of another seminar, public praising was avoided. Then the second test followed; had the publicly praised performed better now? Not at all, those who had been praised were as good as before and had not improved. They were already highly motivated - as the first test had shown - and the praise effected that the motivation remained high. However, those who benefited were the next third of students: They significantly improved their grades compared to the reference group which was not publicly praised at all. It is performance-enhancing when you are shown where you can deserve social appreciation and with which performance you deserve praise. Motivation improves when you know where the (social) goal is and you dare to achieve it. As it turned out, the lowest performing-third, unimpressed by the praise, did not bother to better their results. "Those up there" in the heights of performance and praise seem to be out of reach. The high-performing students had found out that they already fulfil the performance standard if the other participants are motivated to work harder in order to catch up with the front runners. Should it therefore be better to avoid giving praise because the effects are too complex and difficult to predict? Those who come to this conclusion fall too short. Praise can have the effect of high commitment, of

getting high motivation – also top performers with high inner motivation want to be praised – because our brain has a sensitive detector for fairness, and if this deflects in the negative disadvantaged area, it will have a demotivating effect. Praise also has to consider that before praising it is sometimes advisable to back up those who do not dare to accomplish an achievement, to signal to them that performance is expected, but also that support is provided and avoid any form of exposure in case of errors and failure.

It should also be mentioned that they who want to be praised should also sometimes give praise – also bosses should let themselves be educated when it is said in a suitable moment, that indeed it has been noticed how employee xy was praised for their work, progress, or commitment. And they who await praise in order to be motivated is certainly able to give praise themselves or to ask themselves, due to a change in perspective, why a teacher, a superior, a spouse would like them to do something that he/she should perform. Already this change in perspective, in the mind of the other person, can help to make things clearer and can already be self-motivating. Motivation is not always the problem of others!

Increasing motivation

What distinguishes a brain of a motivated human being, who, for example, is powering towards a win, pushing their capabilities to the limit, or taking on painstaking work for years because they believe in making an important realization, from a non-motivated one for whom every effort is too much, who does not feel like achieving a particular goal - this is something that brain researchers are only beginning to understand. First of all, it is important to distinguish between extrinsic (from the outside) and intrinsic (generated from the inside) motivation. In cases of extrinsic motivation, the consequences of an action play the decisive role. These are incentives from the outside, which especially parents, but also employers use as reward – or as punishment. Here it has shown that a reward both in animal experiments and also in tests performed on human subjects is much more effective than a punishment. Sometimes a reward (a bonus payment) can also have a negative effect on motivation. Here the intrinsic factors of motivation are decisive. This term is used to describe the circumstances that you address yourself to a task from an intrinsic incentive, and not because incentives set by other persons push us to do it. You do something for its own sake. This self-motivation is one of the strongest powers in man. External incentives, in contrast, are never as effective as internal motivators. He or she who is already highly motivated has a much higher activation potential in their nervous system than could ever be produced by extrinsic factors. Through extrinsic incentives, however - namely the promise of a reward – the original self-motivation is more or less overwritten. The brain stores the factor that a reward will take place when you do something specific. Thus, fun, well-being and possible inner satisfaction as intrinsic incentives are repressed and the striving is directed to the external reward. This can lead to the situation that employees do not want to carry out special actions or performances because they enjoy it, it creates social acceptance or because they simply wish to understand something, but because they receive a reward for it (or avoid a punishment). But these external incentives wear out quickly and lead to habituation effects, which are, of course, often helpful to plug motivation holes when the self-motivation for a subject is very low.



He who does not believe in internal motivation will be put right by all infants. Babies prove that learning motivation, in the true sense of the word, is childishly simple. From the beginning newborns explore the world; infants tirelessly practice walking, speaking or endlessly asking questions – and quite obviously like it, without us rewarding them excessively. And why are babies real masters of learning? “Because we have not yet had a chance, to break them of the habit”, Ulmer learning expert Manfred Spitzer answers.

The above mentioned cannot hide the fact that motivational problems associated with it are a primary, if not the biggest problem for training and also at the work place. The first step to a priority list in the head is the decision between important and unimportant information: The number of nerve fibers of all sensory organs together is about 2.5 million. Each of these fibers can emit several 100s of electrical impulses per second. This is a data transfer into the brain of 100 megabytes per second! Therefore, the brain must use filters in order to separate relevant and irrelevant stimuli from one another. This is what the nerve cells do so efficiently that we often do not even notice anything of the large amounts of data. In order to accomplish this, our brain, in principle, uses two ways: On the one hand, the data of the sense organs themselves are continuously filtered up to higher brain areas. On the other hand, the data are not only processed from “the bottom to the top”, but also pre-structured and assessed from “the top to the bottom”. So, through hierarchically higher brain areas, a selection is made for which of the incoming stimuli is further processed.

Accordingly, we do not even perceive a good deal of stimuli as our existing senses only filter out certain aspects from the spectrum of the perceivable. Despite this continuous filtering, far more sensory stimuli still reach our brain than we consciously experience. So, we perceive the world only partially, and due to our selective perception only pieces of these fragments get into the limelight of our attention.

An important aspect of this enormous performance is that the brain always tries to predict what will happen – it pre-structures the world. This, for example, applies to language: Often our language center already knows in the middle of a sentence how the sentence will probably end. But this also applies to certain situations or the taste of a drink, whose value of wellbeing the brain tries to determine in advance. Our reward system motivates us because it pre-estimates what an action will result in. So it is an expectancy and reward system at the same time. If the result is achieved as expected it will no longer be kept in mind: Also champagne and caviar will taste “normal” sometimes. On the other hand, a liver sausage sandwich can be a sensory culinary delight if you have not eaten it over a longer period of time.

In the learning process, results are important, which positively stand out from those what the brain has calculated in advance: A surprising thing is immediately put high on the priority list. The accounting of the brain stores extraordinary events as a specific entry. The surprise signal – deviations from the expectation – results in the brain storing and remembering the result associated with it especially well. Not only is everything learned that what, in the form of sensory stimuli, rushes at the brain, but first of all that what has positive effects. It is particularly important that the context of this memory which has a positive connotation is also stored. It can go so far that employees only participate in the next

advanced training because it has led to a surprisingly good success last time. This can mean that specific learning situations, whether teachers, the room or other surrounding circumstances, have an influence on how the motivation will be in similar situations. But after which formula does the brain calculate whether signals are positive and when they arise?

The answer summarized in a simple term is: dopamine. This neurotransmitter of the brain is in many ways the substance which pushes us. It is responsible for motivation and reward and activates the performance of many nerve cells in a fascinating way. However, there are only about one million nerve cells in the human brain which produce dopamine. In view of 100 billion nerve cells in total it is a very small number. Despite this small number of dopamine-producing nerve cells the high importance of dopamine arises from its diverse participation in basic characteristics of human action. Dopamine:

- controls wakefulness and attention,
- increases learning ability,
- increases curiosity,
- inspires fantasy,
- conveys pleasurable sensation during sex,
- supports self-confidence,
- makes one optimistic,
- motivates one to achieve certain goals,
- can induce euphoria.

In addition, it also stimulates the motor system. So, with Parkinson's patients, primarily, a motor system activated by dopamine is disturbed.

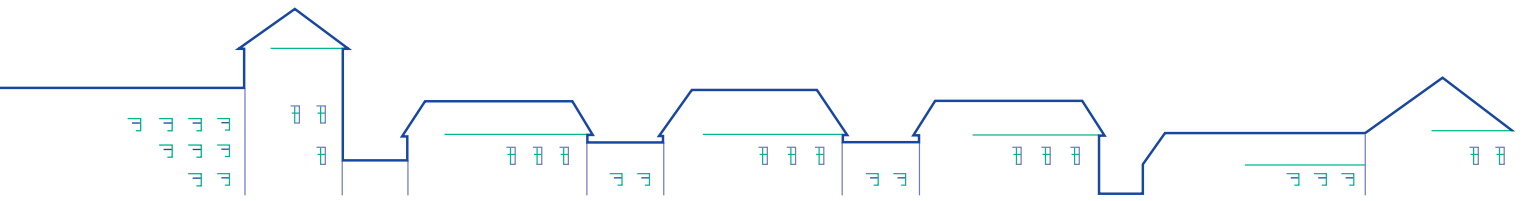
Dopamine is also the neurotransmitter of the reward and expectation center of our brain. It arouses tension and anticipation. It draws the attention of the brain to especially interesting situations. Moreover, it promotes the ability of the nerve cells to memorize positive experiences especially well. Thus, learning becomes easier and more effective. Dopamine is particularly produced in the midbrain and there, among other things, in the substantia nigra (black substance) and in a neighbouring area with the prosaic name "A10". These structures are more or less a detector for "new" and "better", and are therefore an important motivator of future action.

The urge to understand

Essentially the human reward system resembles that of animals. Over the course of evolution, it proved to be successful at first because it reinforces actions. The one who looks for food remembers the place at which it was found earlier especially because the consumed food means the reward for the effort of the search. But in human beings a second strategy, in addition to this reward, seems to be of importance: Thinking and understanding something, without an action having necessarily taken place, can cause a feeling of euphoria, joy and well-being, i.e. a feeling of internal reward. Being proud of a successful thought and a successfully finished thing does the rest.



Prof. Dr. Martin Korte



When over the course of evolution did this supplement to the reward system develop a more or less kind of “Gordian knot” for the further development of intelligence and cognitive abilities. Since then the process of learning success activates the reward system of the human brain. It almost seems as if there was an “urge to understand” the human being which uses the archaic interconnections in the brain for its self-reinforcing effect.

Decisive for the activation of this “urge to understand” is also the following factor: Tasks are assessed according to whether you believe to be able to solve them. A too easy task affects the brain just like a too difficult one because then our brain no longer decides between important and unimportant stimuli. The attention breaks down, and the working memory does not work correctly. Demanding too much can have a negative effect on the mental balance just as expecting too little. For a highly talented child, the adaption, for example, to a slow learning speed in his class can be real torture. And also a pupil who is unable to cope with the workload struggles through the school lessons. The effect viewed from the outside seems to be similar, the reasons for the “switching off” of the brain are completely different, but both fall back on the same brain structures: the expectation and reward system.

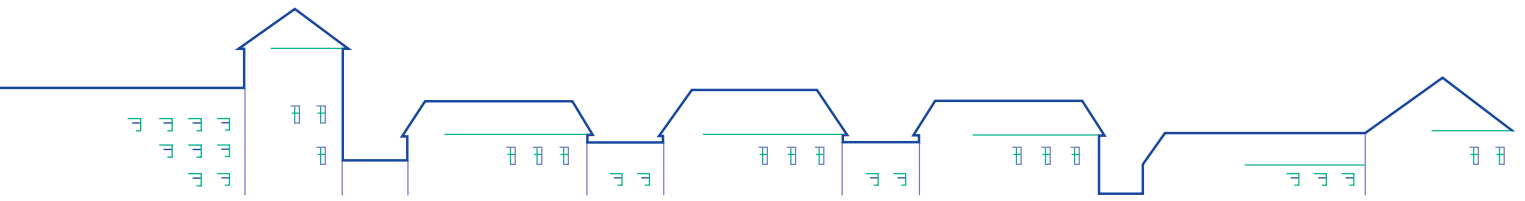
But where does the good feeling come from when you deal intensively with an issue? Here again the neurotransmitter dopamine plays a decisive role: Nerve cells containing dopamine cause, among other things, the activation of the nucleus accumbens. This small nucleus which does not even have the size of a coin is situated in the front part of the brain and belongs to the basal ganglia. It sends information to the frontal lobes and releases a cocktail of substances there, which cause a feeling of euphoria. This nerve fiber pathway is not only active in learning but also in cases of drug addiction, sporting activities, social success experiences, sex or even the consumption of chocolate. Involved in this process are substances which in the course of evaluation, first serve to block the endogenous pain pathways from the skin via the spinal cord into the brain (He who runs away from a lion should not feel the pain of a thorn in the foot!) These endogenous pain killers are also referred to as endogenous opiates (opioids) which in fact are related to the drugs morphine and opium. Without these endogenous opioids the world would be a uniform emotional grey. Our emotional highs, however, are often induced through the release of dopamine in the nerve pathways to the nucleus accumbens. This is particularly the case when our expectations are surpassed. This is the crux when learning. Trainers and mentors should try to dose the learning tasks and the demands individually. Because in cases of the right dosage of tension, demands and success the released dopamine in the nucleus accumbens leads to the release of endogenous opiates. This is felt as a reward, and it activates a storage process which carefully keeps three different aspects: 1st the fact that we were rewarded at all, 2nd the knowledge, what we were rewarded for; and 3rd the context, in which it took place. If this information is engraved in the mind, people are willing to take on big efforts, knowing that the pleasant or just the good feeling will come back again in the end. Thus, the nucleus accumbens is the seat of the “urge to understand” which - in the expectation of deep satisfaction, in fact euphoria, when you found out

or understood something very difficult – pushes us to defy all efforts and to try hard. Probably, the inherited genes, together with childish and youthful learning experiences from the parents control the concrete orientation. If too much is expected from the employee, he/she will hopelessly be overloaded and the brain does not reward the effort. If a too modestly set success becomes routine, the nerve cells which release dopamine do not react either. In cases of the correct amount of demand, the reward system is optimally and repeatedly activated. This also means, above all, that the employees are signalled: “Yes, I give you moral support when something goes wrong, but I also expect something from you.” An optimal performance evolves there, where competence for a task and the level of difficulty balance each another; he who demands too little of his employees sows boredom, he who expects too much earns a loss of motivation. Whereas he who makes realistic demands increases the attention, the learning ability and concentration.

Movement and reward

The expectation and reward system can also get support from a completely unexpected corner: First of all, motor activities – running, walking, going by bike, swimming – are good possibilities to activate the reward system. But not only dopamine and other neurotransmitters are released when doing physical exercise. Physical exercise also causes the release of endogenous “fertilizers”, so called growth factors, which lead to the fact that the nerve cells in the brain are better connected to one another. Moreover, it was found out in recent years that new nerve cells still develop in the human brain after birth. The rate is influenced by nerve growth factors, which again are increasingly released during physical exercises. One who is physically active also does, in many ways, something for their mind: He or she reduces stress, which can likely lead to neuronal cell death when it acts too long on the brain in the form of cortisol. Sport activates the reward system of the brain, which leads to a feeling of happiness and euphoria, and even more so, to a feeling of well-being and relaxation.

Why does a full, undivided attention have such an advantageous effect on the learning of competencies? Learning, from a brain technology point of view means a change of synapses, i.e. the switching points between the nerve cells. Such changes only take place when synapses are active. The more active a neuronal network is the easier information can be stored in it. And it is exactly here that the brain mechanisms seem to intervene. Selective attention leads to an increase in activity in the areas which process specific sensory stimuli. In fact, the areas that are activated are responsible for the processing of exactly these aspects or objects. The more active an area, in cases of storing, the better the chance to remember the stored information. A simple increase in the activity of the nerve cells also increases the chance that perceptions, events and facts are better remembered and for longer. Concentration is worthwhile because it intervenes at the decisive point of learning: when initially stored. The principle rule is: What is not stored cannot be remembered.



Digital media, the world of working and brains

Acquiring competencies: In principle: handling the available information content without the filter mechanism has been impossible for the human brain for a long time; this has already been very true since Goethe and the Humboldts. Only that we are still under the illusion that we have arrived at the paradise of knowledge through the omnipresence of information and do not notice that too much information does not imply knowledge and certainly not education. What we need for the training context - if you will allow me to posit - is an education at school which focuses more on how you pool, network and critically insert so much information into your world view; in a word, we need educational tools which include the use of modern media (what else?), but do not let this dictate the commercially controlled acquisition of knowledge.

For what do we want knowledge? The internet is everywhere, you have access any time, and thus you can look up everything in any place at any time. So, do you not have to know anything yourself in future? Our brain will not make it less easy for us, and this is due to characteristics of interconnections of nerve cells in the human brain. If two events take place at the same time, or if we associate one term with another, the contact points, the synapses, between the nerve cells will change. Brain researchers call this a network associative, i.e. the connections of nerve cells among each other are adjustable in their intensity (porous to signals). One of the important characteristic of these associative neuronal networks is that new information can always be inserted in existing networks. And this is where the power of knowledge lies: He who knows a lot can easily combine new knowledge with prior knowledge in many ways. Conversely, he who knows little must interconnect completely new networks time and time again - instead of only new ones to existing ones. Imaging techniques show that a trained brain requires less neural space for arithmetic operations than untrained brains. And this despite the paradoxical situation that – when we practice something intensively – the brain modifies itself in a way that more storage space and space for arithmetic operations through an internal shift of resources is allocated for this activity – sometimes even in competition with other areas of the brain. Psychology and educational sciences have long been proven that knowledge is something self-acquired and has to clearly be distinguished from pure information. In order to acquire knowledge and to store it for a certain period of time these knowledge elements must have passed the brain in cognitive loops. Only then can we put this knowledge into larger contexts. It is probably too naive to believe that you know something yourself just by pressing a button and to be able to critically deal with this knowledge. The importance of the self-acquired knowledge is also shown in the fact that a high IQ itself and a quickness of mind are not sufficient in order to be successful in school and at work. However, a good prior knowledge is always worthwhile as studies have shown. Also one who wants to look something up needs prior knowledge and general education to carry out an intelligent search strategy. By the way, nobody needs to worry that the storage space in our head is not equipped for the enormous growth of knowledge in the world - this is not the point here. According to calculations we could store the equivalent

amount of 100 million data CDs. Our problem then is rather to choose the best data such that it comes into our mind at the right time. However, it should be noted that animals and people have developed a memory over millions of years which is highly-selective, and this is not a “bug”, but rather a “feature”, in order to be able to store and retrieve information dependent on importance. Our brain is still the most efficient machinery on this planet, even if this neuronal wheelwork does not work flawlessly after all.

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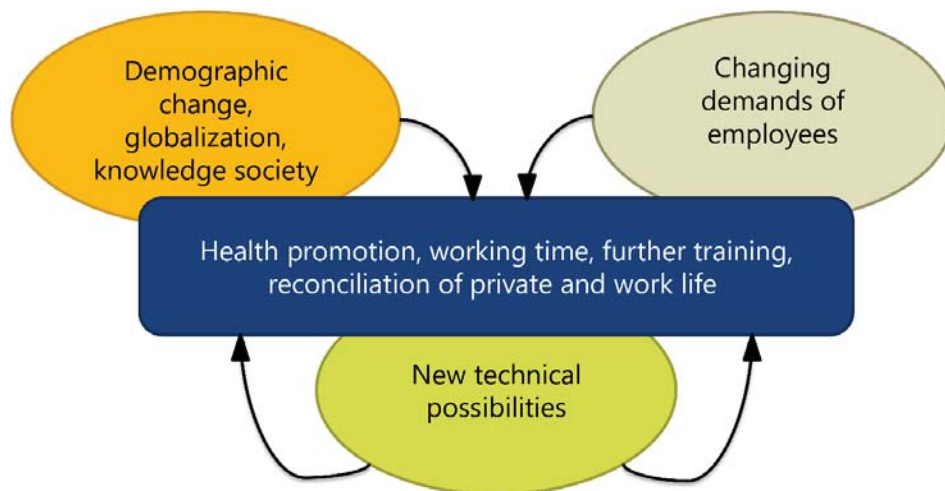
Concepts of Work Design - According to the Stages of Life

Prof. Dr. Lutz Bellmann

1. Introduction: Changes in the world of work

On the one hand, the world of work in the future is connected with big challenges due to the demographic change, globalization, the transition to a knowledge-based society and the changing demands of the employees in their work. On the other hand, there are possibilities of digitalization, especially in the case of high performance information technology with a comprehensive and interactive networking and storage capacity as well as a comprehensive networking of people and machines for the first time (Möller 2015). The aim is to control the value chain, digitally. Not only to unlock the potential of new technologies and changes in work processes and organisation (Arntz et al 2016) but also, for example, to avoid psychological stress resulting from the blurring of work and private life, and to reconcile the mentioned challenges with the demands of the employees. This also includes personnel policy measures to promote good health during working hours, in further training and to improve the reconciliation of work and private life.

Figure 1: World of work in the future



Before addressing the issue of change in the world of work, the need for further training, the significance of different stages and areas of life of employees should be discussed.

2. Expected personnel problems in Mecklenburg-Vorpommern

Over the course of the IAB Establishment Panel the company representatives in Mecklenburg-Vorpommern were regularly asked about personnel problems expected by them in the next two years.

Figure 2 shows, that they very frequently state the (related) problems to cover the skilled worker's gap of 34 % and the ageing worker's gap of 9 %. More often than the latter the burden of too high labour costs are named by 15 % of the respondents and problems caused by shortages of personnel are named by 11 %.

Figure 2: For the next two years expected personnel problems in Mecklenburg-Vorpommern



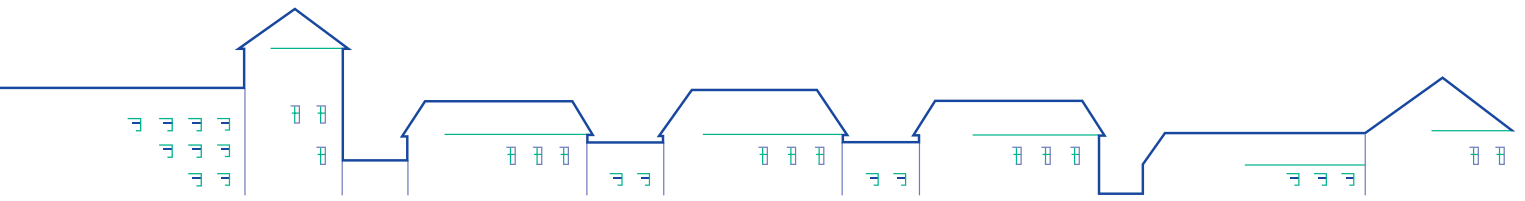
Source: IAB Establishment Panel (N=961)

In contrast to this, Figure 3 shows that in the public administration in Mecklenburg-Vorpommern the high absenteeism/sickness absence rate of 15 % are most frequently mentioned, followed by problems of covering the skilled worker's gap (10 %) and overageing (8 %), which occur similarly often just like in all companies in Mecklenburg-Vorpommern.

Figure 3: For the next two years expected personnel problems in the public administration in Mecklenburg-Vorpommern



Source: IAB Establishment Panel (N=61)



3. Consequences of digitalization

In Future Monitor IV, commissioned by the Ministry of Education and Research (2017), it is clear that the population also expects that they are directly affected by the change in the labour market due to digitalization:

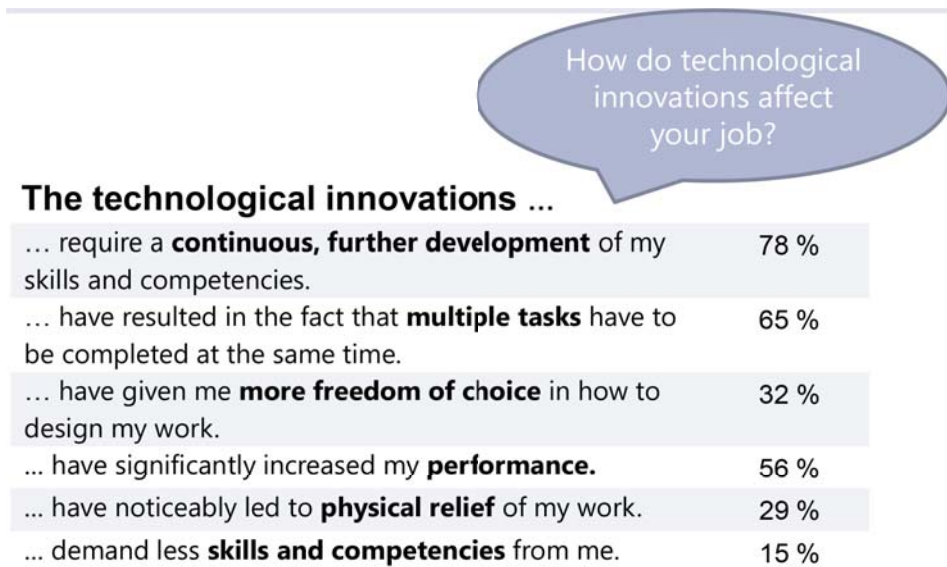
* 48 % of the population assesses digital technologies as the reason for changes in the workplace.

* 44 % assume that they will start a new professional career sometime.

* "Prerequisite for professional success is lifelong learning" – 90 % of the respondents agree with this statement.

These results are confirmed by the IAB (Institute of Employment Research), the University of Cologne and ZEW (Centre for European Economic Research) which carried out the project "Quality of Work and Economic Success" (Kampkötter et al. 2015 and Grunau et al. 2016). Figure 4 shows the outstanding significance of the experiences of the employees, that technological innovations require a continuing development of skills and competencies: 78 % of those interviewed mention this aspect. It is interesting that 29 % of the interviewees state that the technological changes have noticeably led to a physical relief of work.

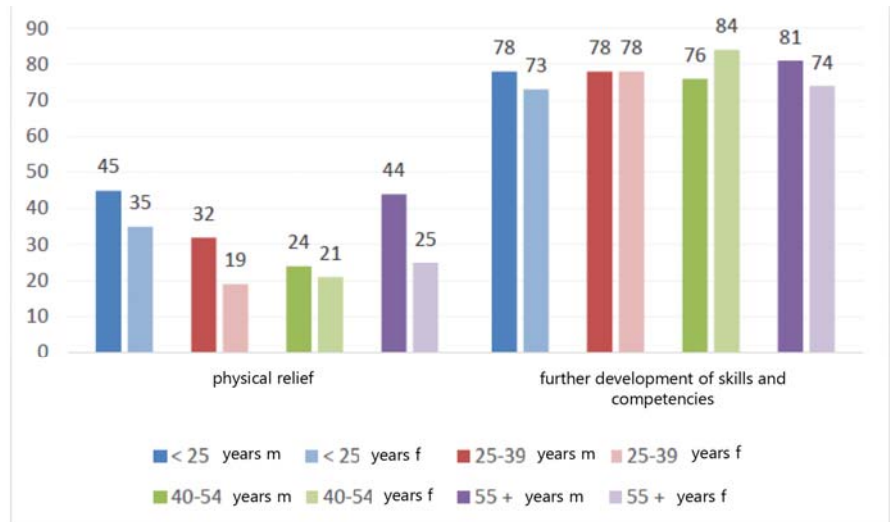
Figure 4: Consequences of digitalization: experiences of the employees



Source: IAB-University of Cologne-ZEW study "Quality of work and economic success" 2015

Figure 5 indicates that this aspect of physical relief is especially true for men under the age of 25 and over the age of 55; whereas the necessity of the development of skills and competencies is seen by all age groups as well as by women and men with minor differences (Bellmann 2017).

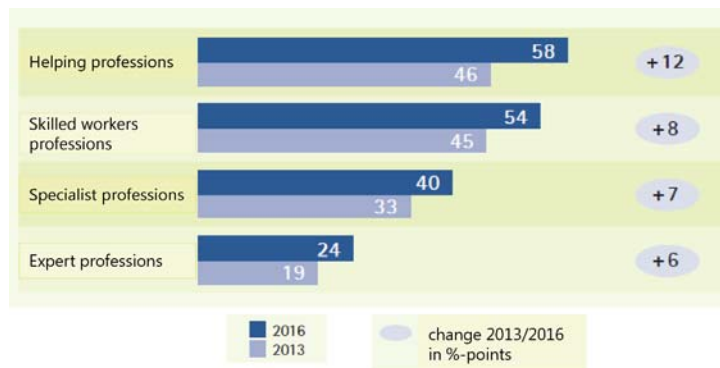
Figure 5: Physical relief and the necessity of the development of skills and competencies: experiences of the employees



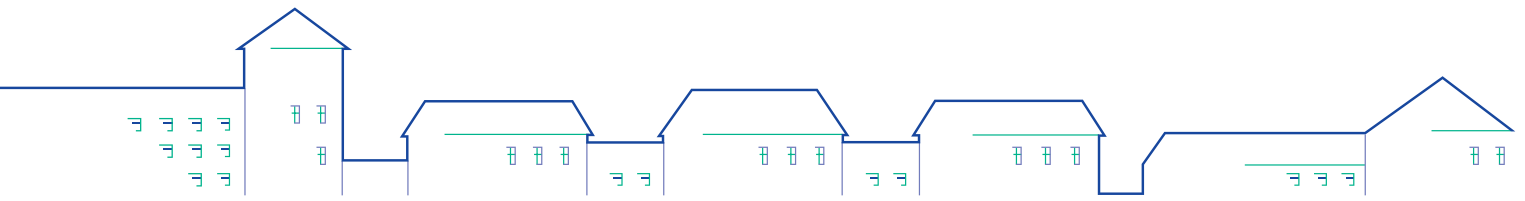
Source: Own analysis of the Linked Personnel Panel 2015

As mentioned before, the fears among the population “to start a new professional career sometime” are particularly pronounced. Dengler/Matthes (2015, 2018) have examined the extent in which professions can be replaced by computers or computer-controlled machines. They ascertained the potential of substitutability from the assessment of professional experts for the approximately 4,000 known professions in Germany, on the basis of training regulations and job advertisements. Figure 6 shows that the potential of substitutability decrease with increasing levels of qualification requirements: This applies to 58% who are working in helping professions, to 54% in skilled workers professions, 40% in specialist professions and 24% in expert professions. In comparison to the years 2013 and 2016, the differences between the levels of requirements have even increased. The proportion of employees subject to social insurance contributions who worked in a profession with high substitution potential (over 70%) has increased from 15% in 2013 to 25%.

Figure 6: Potential of substitutability: assessment of experts



Source: Dengler/Matthes 2018 on the basis of BERUFENET



Even if these potentials are only partially exploited since economic, ethical or legal aspects are an obstacle to automation (still) the question arises how employment will develop. Can jobs which have become unnecessary be replaced by new ones? Will it be possible to also fill these newly created jobs? This will depend crucially on whether it succeeds in creating the requirements for it through further vocational training.

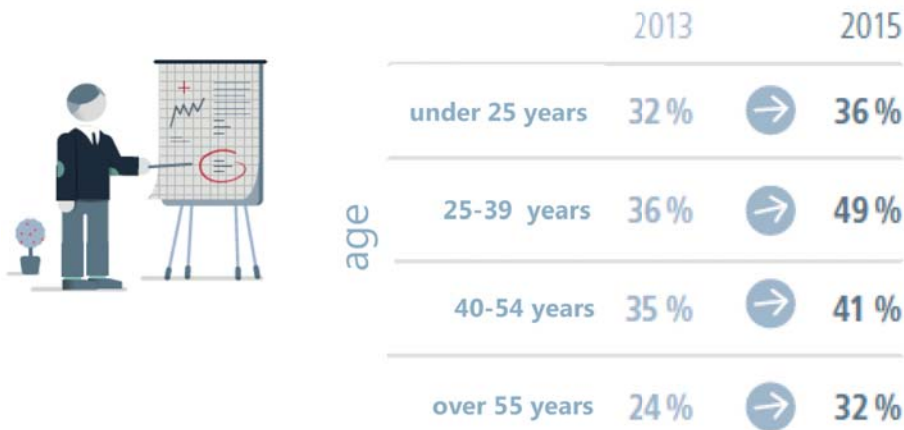
4. Advanced vocational training

The possibilities for further vocational training have significantly improved in Germany in the years since the Great Recession of 2008/2009. The role of digital learning, particularly in conjunction with conventional forms of learning, has made a decisive contribution to this. According to the findings of the Linked Personnel Panels there has been a real "further training boom" in Germany in the period from 2013 to 2015.

Figure 7 shows that the proportion of employees who participated in further training courses last year for which they were permitted by the employers or for which the employers bore the costs has increased for all age groups. The largest increase of 13 percentage points was registered in the 25-29 year-old age group.

Figure 7: Advanced vocational training - age

What percentage of employees took part in further vocational training courses for which they were permitted by the employers or for which the employers bore the costs last year?



Source: IAB-University of Cologne-ZEW study "Quality of work and economic success"

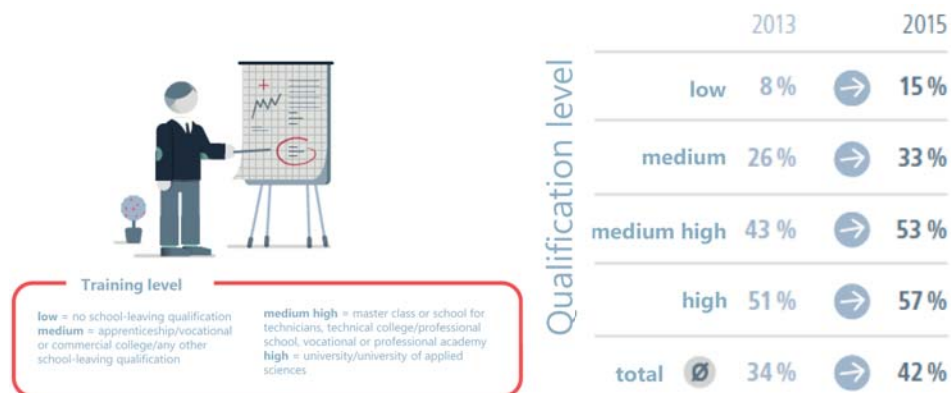
Figure 8 shows that this increase in participation in further training was also registered for all levels of qualification. This development with 10 percentage points was strongest among master craftsmen, technicians as well as graduates from colleges, vocational and professional academies. The big differences in level should also be pointed out. For example, the proportion of those participating in further training without professional qualification at 15 % was comparatively low.



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Figure 8: Advanced vocational training – level of training

What percentage of employees took part in further vocational training courses for which they were permitted by the employers or for which the employers bore the costs last year?



Source: IAB-University of Cologne-ZEW study "Quality of work and economic success"

Finally, Figure 9 illustrates the development of participation in further training concerning different forms of employment. The share of part-time workers (37 %) and those who have a fixed-term contract of employment (32 %) is lower than for employees with a full-time job (43 %).

Figure 9: Advanced vocational training – forms of employment

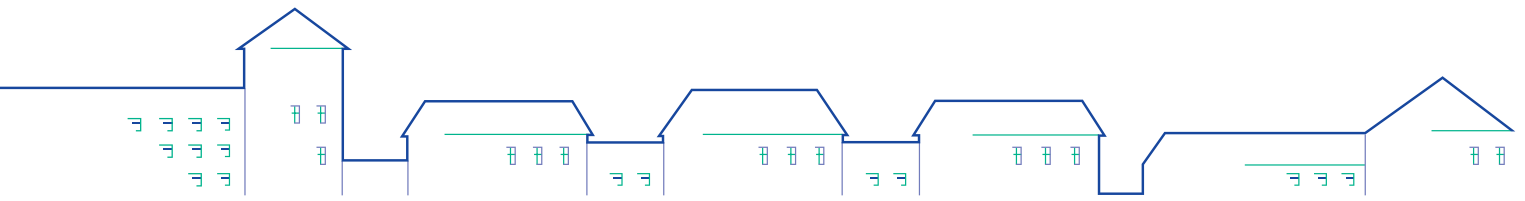
What percentage of employees took part in further vocational training courses for which they were permitted by the employers or for which the employers bore the costs last year?



Source: IAB-University of Cologne-ZEW study "Quality of work and economic success"

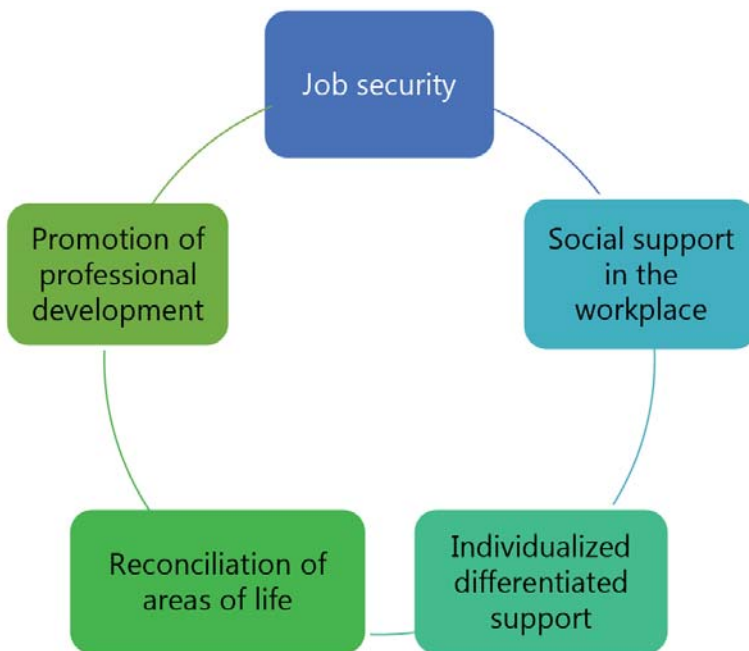
5. Stages and areas of life of employees

Changes in the world of work and the technical changes, but not only these ones, essentially determine the vocational orientation of the employees. They are related to non-vocational areas of life, such as leisure time, housework, partnership, family, health, volunteer work and social relationships. These areas of life are not clearly differentiable from each other. Social contacts for example are



closely connected with the leisure area, because hobbies are exercised together. Sports activities are also directly linked to health. Human resource management increasingly sees the necessity to react to these orientations of the employees, and to take the key expectations of the staff like the reconciliation of areas of life, security of employment, promotion of the professional development and social support in the workplace into account (Figure 10).

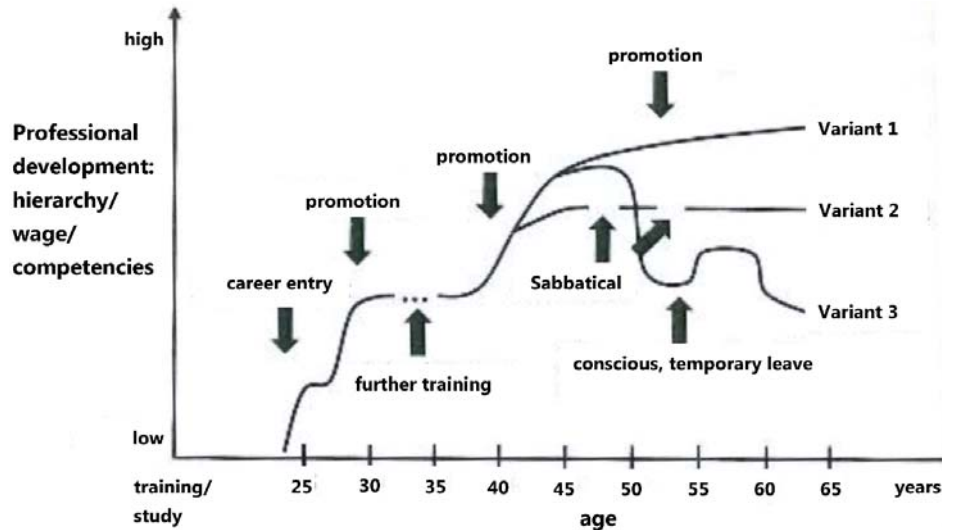
Figure 10: Key expectations of employees



Source: according to Hohensee 2017, p. 167

According to Regnet (2014) the changes to orientation depending on the age and individual differences mean, that aside from the traditional professional career (variant 1 in Figure 11) which mainly aims at a vertical advancement from career entry via several promotions and further training to career endings, plateaus (variant 2 in Figure 11) become relevant. The (repeated) use of further training and sabbaticals is meant by this. Hohensee (2017) extends this approach by taking the intended temporary withdrawal from professional duties into account, e.g. to take over less demanding and stressful activities or voluntary work (variant 3 in Figure 11). The author emphasizes that these development paths in the context of a life-stage oriented human resource policy should be designed so that a "part-time trap" or a "career setback" is counteracted. Setting the course for professional development should not solely be possible at the beginning of the professional path. Breaks due to reduced professional activities or further training should generally be realized regardless of age and gender as well as depending on the need.

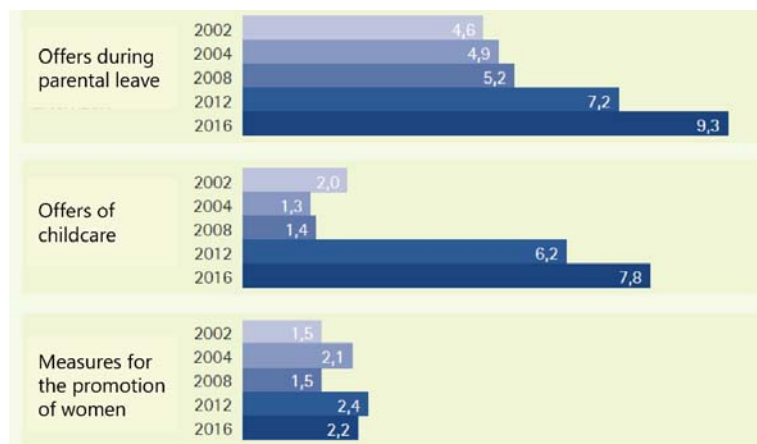
Figure 11: Approaches for new career paths



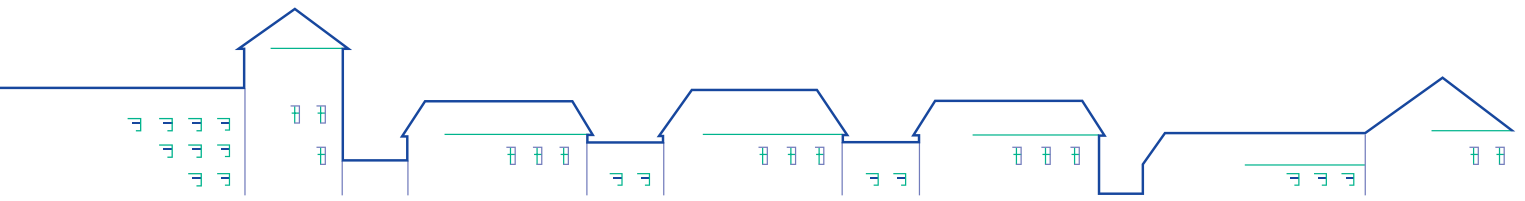
Source: Hohensee 2017, p. 154

Meanwhile, employment just as family formation is an integral part of life planning of young men and women. Thus, companies throughout Germany increasingly face the challenge to facilitate the reconciliation of the work and private life of their employees. But do they in fact – in addition to government regulations – also increasingly include formally family-friendly measures in the company’s human resources policy? Analyses from the IAB Establishment Panel 2006 to 2016 show that the proportion of the companies which offer measures for supporting the reconciliation of work and family life has significantly increased since 2002. Most commonly across companies are offers during periods of parental leave followed by benefits during childcare. Measures for the advancement of women and long-term accounts for a leave from work for family times (not represented) are, however, much less common.

Figure 12: Proportion of companies with family-friendly measures in percent



Source: Fordermann et al. 2018 including the extrapolated data of the IAB Establishment Panel 2002, 2004, 2008, 2012, 2016



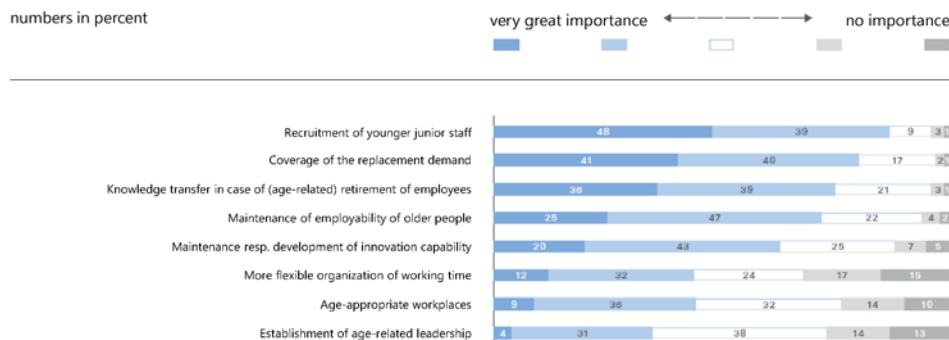
Against the background of demographic change it will therefore be necessary for personnel recruitment and personnel development to focus on young junior staff and women in order to ensure that staffing requirements are guaranteed and to be able to satisfy the structural changes in the future of the world of work. Further target groups like older people and immigrants should also be focused on.

6. Measures for older workers

Within the project "Recruiting and Retaining Older Workers in Chemical Industry Companies" funded by the Hans Böckler Foundation, a sample survey of 385 small and medium-sized companies (of 20 to 500 employees) in the chemical sector on several aspects of dealing with older employees was carried out online in the summer of 2016. The questions, among other things, concerned the offer of measures for older employees and the willingness to re-recruit older employees. The chemical industry is therefore especially interesting because demography-related collective wage agreements play a relatively important role.

With the growing proportion of older people in the workforce their importance increases. The project survey provides information on which challenges from a company's point of view are linked with the aging workforces (Figure 13). It shows that the companies first of all pay special attention to recruiting younger workers, but also try to cover the need for replacement. This finding has to be seen against the background of bottlenecks in the labour and apprenticeship market. Many companies have difficulties in finding suitable skilled personnel in the labour market, or respectively, to fill apprenticeships. Although the chemical industry - according to surveys - does not belong to the most affected industries concerning professional bottlenecks this issue seems to be very important. From the companies' point of view, knowledge transfer, in the case of employees leaving also plays an important role. In comparison, the maintenance of employability of older people and the preservation or the development of innovative capability are considered to be of a secondary importance.

Figure 13: Importance of the aspects of age structure in the company



Source: Bellmann et al. 2018 including the data of a survey in the chemical industry 2016

That the companies do not see the core challenge of the aging workforce in the maintenance of employability is possibly due to the fact that they are already relatively well positioned in this area. Thus, the results from the project show that

personnel policy measures for older employees – i.e. measures which are usually oriented towards the maintenance of employability – are relatively widespread in the companies of the sample. More than eight out of ten companies use at least one personnel measure for older employees.

Looking at the distribution of individual measures it is apparent that the mixed-aged staffing of working groups is the most commonly used tool of the companies (Figure 14). However, mixed-aged teams do not necessarily have to be the consequence of a conscious personnel decision of the company; also other reasons, e.g. the availability of personnel, can be the decisive factor. Comparatively many companies involve their older employees also in measures of health promotion or further training. Thus, such measures at which the older people are not treated as a special group are used especially often. Special activities for older people such as, for example, age-specific further training offers, however, only play a very subordinate role in business practice. Here the situation is similar to the overall economy (Bellmann et al. 2018), in that general further training measures are more widespread than special offers for older people.

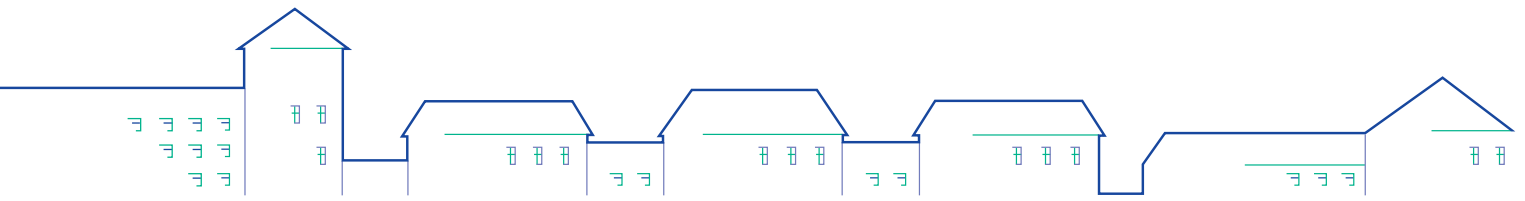
Figure 14: Business measures for older employees



Source: et al. 2018 including the data of a survey in the chemical industry 2016

7. Conclusion

What are the most important personnel problems in Mecklenburg-Vorpommern? The company representatives often mentioned problems related to covering the skilled workers' gap (34 %) as well as overageing (9 %). The burden of wage costs (15 %) and staff shortage (15 %) were mentioned even more often. In the public administration, the high absenteeism/ sickness leave rate (15 %), problems relating to covering the skilled workers' gap (10 %) and overageing (8 %) are mentioned particularly often. To the challenges due to demographic change, globalization, the transition to a knowledge-based society and the changed demands of the employees to their work, the companies have to find answers.



They increasingly respond with new strategies of further training, health promotion, workplace design as well as a family-friendly personnel policy. A particularly interesting result is the significantly increased proportion of companies since 2002 which offer measures for supporting the reconciliation of private and work life. In this connection the growing importance of the individual reconciliation of areas of life, the design of stages of life and the demographic change also becomes apparent. This also means that personnel work should no longer only focus on the professional context of the employees. Changing priorities regarding areas of life make new career models interesting.

Company representatives highlight the aspects of recruiting younger junior staff, of meeting the replacement demand and the knowledge transfer relating to employees leaving, associated with the age structure of the workforce. Among other measures for older employees securing their employability, mainly through the involvement in further training, especially against the background of industry 4.0, is important. Even more important are the mixed-aged staffing of working groups, offers to continue working for the company after retirement and the involvement of older people in workplace health promotion. Furthermore, possibilities for action of work and personnel councils concerning both risk assessment and integration management should be emphasized.

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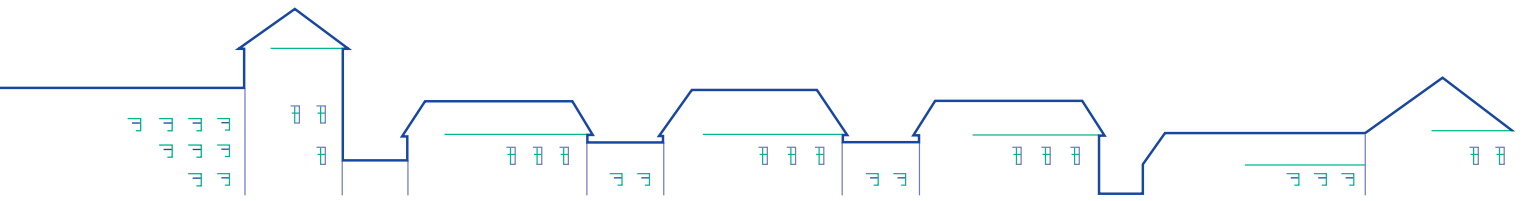
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Shaping the Last Professional Years and the Transition to Retirement Positively

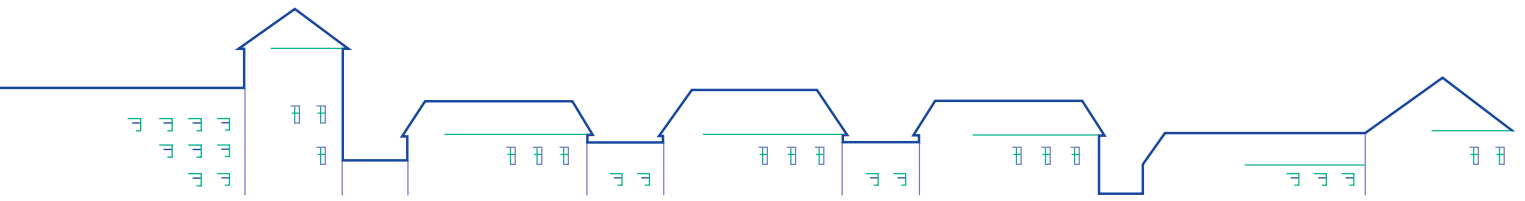
Birgit Schönberger

What is in people's mind at the end of their professional career? What drives them? What are they worried about and what strengthens them? Over the past eight years I have worked nationwide with hundreds of seminar participants in administration on the very issue of last professional years - and in both of the two-day open seminars I have gained a strong insight. My theses do not make a scientific claim, they are, rather, the essence of numerous talks with people aged between 55 and 56 who deal with the last professional years.

What are the people worried about in the last years and months before retirement? For me, five questions and issues emerge, which I am faced with in all seminars, and which I would like to call trouble spots because they cause an inner unrest in this stage of life, which can have an effect on the well-being and also on performance and motivation at work.

1. How can I manage until retirement? The constantly increasing pace of work, the ever growing mountain of tasks, the new requirements through digitalization. The discrepancy between work intensification and acceleration and the declining physical and mental powers at the same time worries many in their last professional years. Some of them are worried about no longer being able to meet the requirements, not keeping up with the work, being sneered at by the younger ones who have less trouble with electronic administration. Others are afraid of falling ill again. Most of the participants have already gone through health crises and are afraid of falling ill again or anew. They express fear of only reaching retirement age with their tongue hanging out and in poor physical condition. Closely linked to this is the worry of not being able to enjoy the freedom which is waiting on the horizon and longed for by some of them.
2. When exactly do I retire? Do I retire at the envisaged time? Do I retire earlier with deductions? Do I use a semi-retirement model when my administration offers it in order to not suddenly drop down from one hundred and eighty to zero but rather to organically shape the transition to a post occupational phase? How do I reconcile my interests with my partner, with my family? Often pressure arises, because the partner has already retired and is longingly waiting for the other to also stop working. However, the expectation of the partner is not always consistent with their own needs. Some of them want to spend their leisure time with the partner as quickly as possible, whereas others like working and are inwardly still far away from retirement. If the participants use the seminar and clarify this question in a good way for themselves and find a coherent model, it will bring them great relief and clarity which will have a positive effect on the last years of work. Conversely, people who put off the question of when to retire - until the end, and find no clarity, suffer from a conflict of ambivalence which takes a lot of energy. The question unconsciously continues to have effect and absorbs attention which is missed in everyday professional life.

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3. Do I get enough appreciation? Appreciation certainly is a sensitive issue in many companies. I, however, haven't got any deeper insights in order to be able to judge this. For public administration, I can say with good reason: lack of appreciation is a key issue. Of course, we need recognition and appreciation in all stages of life. In the last professional years people are particularly hard hit when they do not feel appreciated for their commitment. A standard sentence which is heard in each seminar reads: "Actually, I enjoy my work, I like it and I also have nice colleagues, but I do not get any appreciation from my superiors, and therefore I don't feel like working to the bitter end." Lack of appreciation is a motivation killer, especially at the end of one's professional life. The opposite is also true: If people enjoy their work and have the impression that their superior, on the whole, is satisfied with their commitment and occasionally expresses this, they usually want to work until the legal retirement age or even beyond.
 4. What happens to my position, with my area of work when I retire? Can I train someone new, pass on my knowledge? Often the position or the whole area of work is completely cut and will no longer be filled. Surely, some job cuts through cost savings are unavoidable. That digitalization makes entire professional fields redundant is an unstoppable process of change. However, it must be pointed out that these processes affect those who are shortly before retirement. Knowing that there is no successor who you can pass on your knowledge to, or learning that nobody is interested in the knowledge which one has acquired over decades is hurtful and retrospectively devalues the work performed. It is important to think about ways in which experience-based knowledge – at least in a minimal form - can be passed on. An example: In the Berlin Senate Administration a mentoring programme was drawn up. Younger employees accompany older ones who are at the end of their professional life, interview them and record their acquired knowledge. If leaders, together with their employees, think about how this can work, creative ideas will develop.
 5. What comes next after the professional life? First of all, this worry is unconscious and hides in sentences like: "I don't worry. For sure, I will not get bored; I have got so many hobbies and enough to do in the garden and with my grandchildren. In a relaxed way I take things as they come." But beneath the sovereign surface existential questions lurk: Who am I when I do not work anymore? Do I perhaps fall into a deep hole because, after all, I miss something important? Will I fare just like my neighbour who has talked big about all that he/she will do in retirement, but does not get off the couch anymore? How will I feel when I am together with my partner from morning till night? How long will I stay fit? During a two-day seminar, sooner or later, deeper questions come up. Some of them express what others do not even dare to think about "Now the last period of life starts". The issue of the last professional years confronts all with the finiteness which we like to repress. After an embarrassed silence when the taboo issue is spoken, often a new liveliness in the seminar arises and the awareness: Life is precious, the time ought to be used well and - life cannot be postponed until retirement, it is happening now. Who knows what will happen in two years?



The seminar is an intense learning process, not only for the seminar participants but also for myself, in which I get to know myself better and scrutinize many things. In the beginning, I thought I had to present many scientific studies and impress the participants with numerous overhead transparencies and many tips. It took some time until I realized that it was about something completely different in this seminar: Creating a room, in which the people can talk about their questions and worries, exchange with other people and get inspired by them. Luckily, in the last professional years not only questions arise which cause inner unrest. In this stage of life often it is still possible to "bring in the harvest" and to enjoy the fruits of routine, experience, knowledge and personal development. What do people strengthen in their last professional years? Which resources did they develop in order to deal with the challenges? Five qualities seem to be essential.

1. Composure: I am always impressed how often this quality is mentioned in the seminars, not as a distant target on the horizon, but as an experienced reality. Composure has many facets. Being able to be myself as I am, being in agreement with me, with my strengths, quirks and mistakes, leaving me in peace. Also to be able to accept the situations as they are. Composure in the sense of a wise ability to distinguish: Do I have an influence on the present situation which worries me, or not? If I have no influence, will I then be able to inwardly take a step back?
2. Thankfulness: Appreciation for life increases with age. What we take for granted while still young we experience as a gift in advanced age, because we have already experienced how fast happiness, which seemed to be a certainty can disappear, how fragile health is, and how fast things change without having an influence on it. Many seminar participants are pleased that little things are more important for them, that they enjoy a sunrise, the chirping of the birds, the colours of the autumn leaves, a good glass of wine - more consciously than they did in the past. This is also due to the fact that the family does not demand that much and there is more space and life becomes more precious in the consciousness of the finiteness.
3. Recognizing the essentials: One of the main advantages of ageing is the ability to distinguish the essential from the non-essential. To know oneself better also means to know what is really important for me and what counts for me, even if this contradicts the mainstream. For many, it is liberating not to follow all trends, not to be in more than one place at the same time and to set clear priorities in private life and at work. Not until an advanced age do many find the courage to break contacts which have become unimportant and unsatisfactory and to give up activities which were once important but are no longer appropriate, and instead do something that is coherent and fun. After many years of experience in the job it is easier than in the past to recognize what is really important and urgent and what can wait.

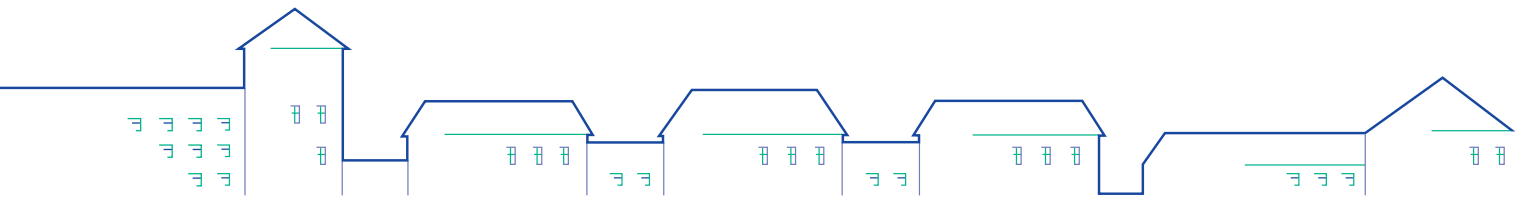


Birgit Schönberger

4. Self-care: Many only understand due to a psychological crisis or a chronic disease that self-care is not a luxury but a necessity, a competence that needs to be learnt. Often it only becomes apparent in a crisis: If I do not care for myself, if I do not take responsibility for my needs, who then should do it? Numerous seminar participants report that they have only learnt how to take care of themselves after a stay in a rehab clinic and to no longer wait for a superior, colleagues or their partner to anticipate their wishes or recognize any signals of overload. The wish to be cared for by others is a childlike wish and more of a barrier in adult life. In the last professional years, many succeed in "after-ripening". They free themselves from the childlike wishful thinking; make every effort to actively support their needs, this is significantly much better for them, and they gain the surprising experience that it is possible to learn to say no. Indeed, the ability to set healthy boundaries is crucial in order to stay fit. The essence of burnout research can be summed up in a single sentence: "No" is the best burnout contraceptive.
5. Courage to oneself: He who is in his late fifties usually does not have much to lose and does not need to prove anything to anybody. The last career level is reached; there is no further need to bend over for a desired promotion or excessively adapt to the needs. Of course, in the last professional years it is still possible to change the work area, to take over a new task, to make a new start once again. Some courageously take new opportunities and grow with them. That's wonderful. But the majority of people who I get to know in my seminars do not want to make great leaps in their last years. A new freedom also arises from it. Some of them happily discover "I am able to dare to speak my mind. I will no longer put up with everything."

With the above mentioned qualities, the challenges in the last professional years can be mastered. However, there is still room for improvement, especially concerning self-care and courage for one's own point of view. Time and again I meet seminar participants who – against their better judgment – wait, for leaders and colleagues to read their stress and wishes in their eyes. They become too little proactive. Very often I hear complaints about high workload. When I ask "Have you already made it quite clear to your superior?", the answer is mostly "No". It is not my aim to encourage the participants to rise up against their superiors, but I support them to the effect that they support their interests in a socially competent and respectful manner, and I let them practice this in role-play scenarios. Most of them tell me afterwards that they have been successful and that they have been able to significantly improve their working conditions.

Why is it important to actively and consciously deal with this issue in the last professional years and through to retirement? Regarding the last professional years, I have already answered the question. Dealing with things which create anxiety has a clarifying and calming effect and clears the mind again for the work, strengthens motivation and has a positive effect on performance. But it is also about what is happening afterwards. The issue of retirement has changed radically in the last few years, so that we need to deal with it in a completely new way. Today, a good twenty years are still ahead of us after retirement. Much life is waiting which needs to be shaped.



We are still lacking the awareness that it is impossible to retire in passing; true to the saying "I'm off then". It's not that easy. The end of the professional life is – even if it is longed for by many – a decisive turning point. This turning point offers big chances and new spaces and entails potential crisis at the same time. The potential of crisis is chronically underestimated. In our culture there is a lack of transition rituals. We do not know how it works to take big steps consciously also with the support of the community. On the list of stressful life events, the start of retirement takes one of the leading positions and follows directly behind divorce.

After the phase of euphoria in that the alarm clock does not ring any more in the morning, and the day can freely be organized according to desire and mood the valley of disillusionment follows. Many realize that they miss the contact with their colleagues. Some notice that they only get started slowly without the working rhythm and tend to let themselves go. Others, however, especially miss the challenge through the job. There is also a certain danger in getting depressed. Especially when it becomes apparent that luck does not occur automatically, only because there is no work anymore that perhaps was experienced as stressful in the end.

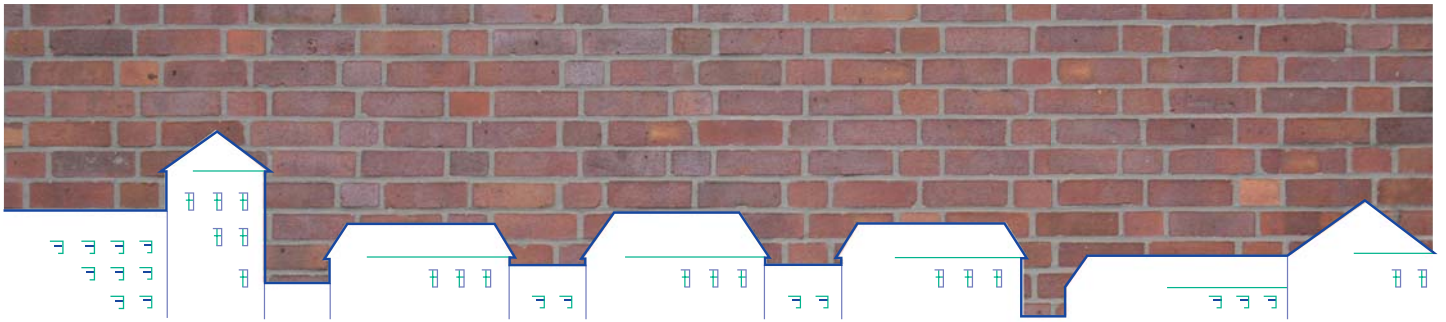
It is important now to find new strategies for this new stage of life and to start the creative power. Finding out how everything that was positive about the job – appreciation, challenge, rhythm, structure and contacts – can be integrated into everyday life in a different way, requires thinking, creativity and activity. If one succeeds in finding a new rhythm to open up other resources of appreciation, for example through voluntary work, advanced training or a language course, there will be a new satisfaction which is no longer comparable with the big euphoria directly at the end of the professional life, but forms a sustainable basis.

Often seminar participants ask: What must I do so that I will never go through a low? In my view the question is wrongly formulated. Any major change is a process which has to do with grief and farewell. Nobody can smuggle past the pain of parting ways. The question is: What do I have on hand in order to get out of this low and come to light again?

How do I want to organize my farewell from my working life? What do I plan for the first weeks? What are my ideas for the time after my work? What am I interested in? What do I want to do? How do I get rhythm and structure in my life? For this there is no patent recipe. These questions everyone will have to answer for themselves, and the answers will be very different from one individual to another. He who actively deals with these questions, exchanges ideas with others and finds answers, has significantly better chances to get through the low and to not get stuck in it. He who has specific ideas from life and already sets the course accordingly can better concentrate on the last months and years at work. Dealing with the post-professional phase has proven to have a positive effect on the last days of work.

About the author

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