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Editorial

Long-term developments in individual work behaviour: Patterns of stability and change

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In the current era, characterized by dynamic societal, technological, and economic changes as well as an increasing diversity in the workforce, previous approaches to individual work behaviour are being challenged (Schalk *et al.* 2010). Demographic trends in the working population, for example, ageing and de-juvenization (Shultz & Adams 2007), are prompting work and organizational psychologists to seek better insight into how individuals can cope with the rapid transformations in their technological, social, and economic environments. Longitudinal studies have provided evidence for the dynamic relations between work and work behaviour and point to the diversity of intra-individual change trajectories across time (see, e.g., De Jonge & Dormann 2006; Martin & Hofer 2004). To interpret the complex results of these dynamic relations, however, new and innovative theoretical as well as methodological perspectives on development are needed, with long-term developmental changes in work behaviour in particular deserving more attention. Most studies so far used a 'between person' approach, focusing on static differences, whereas the dynamic 'within-person' processes have been mostly neglected. This special section contains six papers that report innovative and important studies introducing new theoretical perspectives and methodological innovations in examining intra-individual developmental data.

This editorial introduces the topic, discusses the contributions of the papers, and ends with conclusions and suggestions for future research. We first examine theoretical perspectives, which are addressed in three of the special section papers. Next, we focus on the methodological issues, elaborated in the remaining three papers.

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Theoretical perspectives on long-term development in work behaviour

A long-term developmental perspective on an individual's work and career reveals multi-dimensional processes over time, constituted by the many changes that occur in the psychological, organizational as well as social and even societal functioning of employees (cf. De Lange *et al.* 2006). Taking a long-term approach acknowledges that people at every point in time have past experiences that they carry with them and that these experiences influence their choices, behaviour, self-concept or social identity, roles, and outcomes at work. Such series of experiences not only form a steady stream but are also influenced by critical events at work and in private life.

With respect to the intra-individual psychological processes involved in an individual's work and career, age-related changes have been documented in several fundamental constructs, such as identity, self-determination, work values, future time perspective, job (attribute) preferences, and work motivation. Although general life-span theories exist that address psychological changes over time [e.g., Super's Life-span, Life-space conceptual framework (1957; 1963), Vondracek's Developmental-Contextual model (Vondracek, Lerner, & Schulenberg 1986), and Carstensen's Life-span Socio-emotional Selectivity theory (1998)], there is currently a lack of innovative studies based on theories that examine and explain intra-individual developmental changes in work behaviour, its antecedents, and its consequences across longer periods of time.

First, there is a lack of research into age-related changes in processes such as future time perspective, motivation, and identity, with which to explain intra-individual changes in work behaviour across time. It is highly relevant to examine, for example, how motives, personal preferences, attitudes, and wisdom change and develop over time, and what impact these changes have on work behaviour, in connection with the potential decreases in performance capacity and employability as established in the work-related aging literature (Bajor & Baltes 2003; Baltes, Staudinger, & Lindenberger 1999). An important question is whether changes in psychological processes over time can compensate for dwindling capacity in terms of, for instance, physical strength and memory. Second, there is a need to increase our understanding of intra-individual changes in employee–employer interactions over time (e.g., psychological contract relationships) in relation to work behaviour, enduring work ability, and related outcomes.

In studying work-related topics, work and organizational psychology can borrow from the consolidated position and progress that has been made in the field of life course research in recent years (Billari 2009). The annual book series 'Advances in Life Course Research' has developed into a full-fledged, quarterly, scientific journal (Billari 2009), and the journal 'Longitudinal and Life Course Studies' has similarly become established (Bynner, Erikson, Goldstein, Maughan, & Wadsworth 2009). The consolidation of life course research can be linked to four major advancements (Billari 2009). First, longitudinal research is booming, and large-scale developments in data gathering and analysis techniques have allowed scholars to use groundbreaking research approaches in order to study the life course connecting individual trajectories over time and the trajectories of linked individuals. Second, the increasingly international perspective has influenced the scope of life course research, including more attention for its context-specificity. Third, notwithstanding the promise of laboratory and societal experiments, it is natural experiments, using interdisciplinary approaches aimed at uncovering causal mechanisms, which are expected to be of high added value (Levy & the Pavie Team 2005). Fourth, while aging has always been at the heart of life course research, over the

past two decades research into the dynamic inter-relationships between health and the life course has become crucial.

Over the past three decades, lifespan psychology has evolved into a distinct conceptual area within developmental psychology (e.g., Baltes 1987; Baltes, Lindenberger, & Staudinger 2006; Lindenberger, Li, Lövdén, & Schmiedek 2007). According to the 'Center for Lifespan Psychology' at the Max Planck Institute for Human Development, there are three guiding propositions for research within this domain. First, lifespan changes in individual behaviour are seen as the result of interactions between maturation, learning, and senescence. Therefore, 'the general goal . . . is to identify mechanisms that generate invariance and variability, constancy and change in behavioural repertoires . . .' (Lindenberger *et al.* 2007, p. 231). Maturation and senescence refer to age-graded brain mechanisms and their effects on behaviour throughout life, while learning refers to changes in brain states induced by behaviour-environment interactions. It is important to note that maturation cannot take place without learning and vice versa. Similarly, the ways in which senescence influences brain functioning with ageing depends on an individual's past and present learning and maturational history.

Second, lifespan theory and methodology need to integrate evidence across domains of functioning, time scales, and levels of analysis. In other words, in order to attain a comprehensive picture of individual development, theory and practice need to be integrated across functional domains. More specifically, a better understanding of the mechanisms that link short-term variations to long-term change is needed (Li, Huxhold, & Schmiedek 2004; Lindenberger & Von Oertzen 2006) as well as a better understanding of the connections between behavioural and neuronal levels of analysis.

The third proposition formulated by Lindenberger and associates (2007) pertains to the exploration of age-graded differences in behavioural plasticity as a powerful tool for identifying mechanisms of development. Studying how developmental trajectories can alter through experience is highly important with a view to fostering human development. In this respect, longitudinal age-comparative intervention studies can bridge the gap between short-term alterations in performance and long-term developmental trajectories (e.g., Lövdén, Li, & Lindenberger 2007; Singer, Lindenberger, & Baltes 2003).

Heckhausen, Wrosch, and Schulz (2010), in their eminent recent article in 'Psychological Review', identified four key issues that should be addressed by lifespan theories of development (see also Heckhausen & Schulz 1995; Schulz & Heckhausen 1996). First, lifespan developmental theories need to include criteria for adaptive development that can be assessed in ways that facilitate inter-individual comparison, prevent distortion by subjective biases, and build on cross-cultural consensus about what constitutes a successful life. Second, lifespan developmental theories should view the individual as an active agent in lifespan development. That is to say, individual agency should be studied by addressing motivational processes involved in goal selection, goal pursuit, and goal disengagement. Third, lifespan development theories should address the way in which life-course variations in opportunities and constraints are met by individuals' attempts to master their own development. Fourth, these theories should address processes that help the individual to select appropriate goals in which to invest and to compensate for failures, setbacks, and losses, when they occur. These propositions and key issues are also relevant for age-related changes in work behaviour and careers and have to be taken into account in further developing our understanding of psychological processes at work over time.

Next, we introduce the three papers in the special section that address theoretical issues related to lifespan theories as discussed above.

Special section papers testing long-term developmental theories

The study by Kooij and Van de Voorde (2011, pp. 228–247) is a case in point, when it comes to testing long-term developmental theories in relation to work behaviour. In their two-wave (1-year time lag), longitudinal study among 600 Dutch university employees, they formulated and tested hypotheses based on an integration of two lifespan theories, namely the Selection Optimization and Compensation Theory (Baltes *et al.* 1999), and the Socio-Emotional Selectivity Theory (Carstensen 1995). Specifically, according to the Selection Optimization with Compensation (SOC) model by Baltes *et al.* (1999), successful developmental regulation can be characterized by maximizing gains and minimizing losses through Selecting outcomes, Optimizing resources to reach those (desirable) outcomes, and Compensating for the age-related loss of outcome-relevant means (Baltes *et al.* 1999; De Lange *et al.* 2010).

On the other hand, the Socio-Emotional Selectivity theory (Carstensen 2006) focuses on the motivational consequences of a changing ‘temporal horizon’, and hypothesizes that individuals will select goals in accordance with their perceptions of the future as being limited or open-ended (Lang & Carstensen 2002). More specifically, Kooij and Van de Voorde (2011, pp. 228–247) examined whether changes in future time perspective could explain the relations between age-related health and generativity as well as developmental work motives as found in earlier research (cf. Kooij, De Lange, Jansen, Kanfer, & Dikkers 2011). Their results revealed that negative relations between health and developmental motives can be explained by a reduced focus on opportunities, whereas a temporal focus on limitations may explain the negative relation between health and generativity motives. Although the study has some methodological limitations, it is exemplary in that both theories used focus on individual attempts to cope with health losses across the lifespan and address fluctuations in both development and generativity motives. As such, the authors’ approach is a sound reflection of the viewpoints advocated by Heckhausen *et al.* (2010), and the paper responds to the call for more longitudinal age-comparative research aimed at a better understanding of long-term developmental trajectories (e.g., Lövdén *et al.* 2007; Singer *et al.* 2003).

Similarly, Schaufeli, Maassen, Bakker, and Sixma (2011, pp. 248–267), in a three-wave study examining stability and change in burnout among primary care physicians spanning a period of 10 years, used two lifespan approaches [i.e., the Selective Optimization and Compensation theory and the Motivational theory of Lifespan Development (Heckhausen *et al.* 2010)]. The authors were able to partial out the variance in burnout according to a stable and a dynamic component over time. The dynamic component is found to be the largest, representing three quarters of total variance, whereas the stable component amounts to one quarter. The paper confirms the expectation that burnout is a phenomenon that is, to an important extent, stable over time for workers with a demanding job, for example, that of a physician. Patient demands are major determinants of burnout in physicians, although current demands appear to matter more than lagged-effects or long-term trends in (higher) patient demands across time. Both theoretically and conceptually, this paper contributes directly to the main goal in developmental psychology research, that is, to identify mechanisms that generate invariance and variability, constancy and change in behavioural repertoires (Lindenberger *et al.* 2007, p. 231).

Ten Brummelhuis, Ter Hoeven, Bakker, and Peper (2011, pp. 268–287) also studied the phenomenon of burnout as a process that develops over time. These authors used a different theoretical framework as a starting point, more specifically, the Conservation of Resources theory (Hobfoll 2002). Burnout, according to this model, can be understood

as the result of a long-term process of resource loss that is present in work behaviour in combination with accumulating job demands. The main contribution of this study lies in its examination of how motivation ties in with this process. The study is situated among employees working in a financial consultancy firm. It finds that burnout induces a loss cycle by depleting resources and increasing demand, but that job motivation can play an attenuating role in this regard. More specifically, intrinsic motivation helps employees break through the negative cycle of burnout. Extrinsic motivation, however, appears to aggravate the loss cycle. This study offers an excellent illustration of the dynamic interplay of personal and situational factors over time in an individual worker's career.

The three papers of the special section discussed above contribute to theoretical advancement in the area of long-term developments in work behaviours. The other three papers make specific methodological contributions. Before we discuss these papers, we will first introduce some general methodological issues involved in life-span developmental research.

Methodological issues in long-term development in individual work behaviours

As stated by Hertzog and Nesselroade (2003), the requirement that one has appropriate concepts and methods for evaluating how and why individuals change (or remain stable) as they grow older (Baltes *et al.* 1999; Nesselroade 1991) lies at the heart of the science of aging. Fortunately, over the past four decades, considerable progress has been made in our understanding of how to operationalize the concept of 'psychological change' (see for instance, Baltes & Nesselroade 1979; Collins & Sayer 2001; Little, Schnabel, & Baumert 2000). Again, the field of occupational and organizational psychology has much to learn from developmental psychology in dealing with such issues when studying long-term development at work. Scholars are required to carefully integrate and apply state-of-the-art knowledge across the domains of measurement, research design, and statistical modelling techniques (Nesselroade & Ghisletta 2003). As regards the first issue, Bereiter (1963) has summarized and discussed several problems and dilemmas in the measurement of change (such as, e.g., the correction for unreliability in the measurements being studied for evidence of change; see also Cattell 1966 for more specific information). As regards the research design, it is important to note that the choice of empirical variables, and how well they represent the latent variables of interest, is critical to the validity of a developmental design (Hertzog & Nesselroade 2003). Moreover, the choice of the measurement intervals in relation to the nature of the phenomenon to be studied is crucial: some cases are overly sensitive to measurement errors, while other cases are insensitive to variability and change (Boker & Nesselroade 2002).

The core methodological challenge for researchers in the area of long-term intra-individual development is how to simultaneously examine both patterns of stability and patterns of change across time. Partialling out alpha change (changes in levels of scores over time), beta change (re-calibration of the scores), and gamma change (re-definition of the construct underlying the scores (cf. Golombiewski, Billingsley, & Yeager 1976) is quite a challenge. Several options for researching such patterns have been outlined in the literature; however, in contrast to a 'one-snap' observation in cross-sectional research, longitudinal panel designs (with multiple observations of the same sample across time) have the advantage that one can control for and examine different patterns of stability

and change (cf. Menard 2008; Taris & Kompier 2003; Zapf, Dormann & Frese 1996). For example, using longitudinal panel data, one can examine the stability of the means of job resources and job satisfaction across time ('mean stability'; Garst, Frese & Molenaar 2000) and also examine the stability of individual differences by comparing single individual's developmental trajectories with inter-individual differences in trajectories over time (Duncan, Duncan & Strycker 2006). It is theoretically and practically important to examine whether all individuals display the same growth effects in work behaviour across time or whether some individuals grow more quickly than others.

In this context, Nesselrode (1991, p. 96; Rudinger & Reitz 2001) addressed three different forms of variability across time: (1) intra-individual variability (relatively rapid, more or less reversible changes, also labelled as 'states'), (2) intra-individual change (relatively slow changes reflecting, e.g., developmental processes, labelled as 'trait change'), and (3) inter-individual variability (highly stable across time, labelled as 'traits'). The study of Garst *et al.* (2000) integrated these patterns of variability with the different exposure models suggested by Frese and Zapf (1988) and postulated five meaningful theoretical models for relations between stressors and strains. In our view, these models can also be applied to other work-related issues, for example, positive organizational behaviour, although this has never been tested in relation to variables such as job resources and job satisfaction. This is why, we want to recapitulate these five models here. First, the *Strain Stability Model* assumes that the relative position of individual scores on job strain does not change over time. For example, due to effects of personality traits such as positive affectivity (Fredrickson 2001), it is possible that there will be few changes in specific attitudes such as job satisfaction across time. In contrast to the strain stability model, the *Inter-Individual Differences Model* holds that the stable components of predictors or work behaviour are related and that there is limited room for change. According to this model, the stability effects may be explained by (1) equilibrium processes resulting from person-environment fit (e.g., the worker has enough job resources and will remain happy across time; Edwards, Cable, Williamson, Lambert, & Shipp 2006) or (2) a stable third variable (such as positive affectivity; Fredrickson 2001). More room for change is included in the *Stressor-Strain Trend Model*, which postulates that long-term changes in, for example, demands will result in corresponding changes in job strain. In other words, the mean trends across longer time lags in both variables will be related. This is, for instance, the case when work characteristics gradually decrease or increase across time. This model also allows for more short-term fluctuations in a work outcome such as burnout across time.

According to the *Sleeper-Effect Model*, stressors or reduced health do not necessarily have an immediate effect on work behaviour as they need some incubation time [Frese and Zapf (1988) labelled this the 'accumulation effect']. For example, a worker may have acquired more autonomy in his or her work, but will perhaps only benefit from this positive change in terms of employability by creating more interesting work as time passes.

Shorter effects across time are described in the *Short-Term Reaction Model* (also called the initial impact model by Frese and Zapf 1988), and this forms the basis for many stress-strain models that assume that well-being fluctuates directly with the level of pertinent job characteristics (such as patient demands) (cf. Karasek & Theorell 1990).

It is important that research on long-term development in work behaviour addresses the question of how to combine strategies that aim to identify both stability and change. New analytical methods play a key role here, and several of the papers in this special section employ relatively recent analytical techniques in order to get a

better grasp of the developmental processes in work behaviour. The studies by De Vos and Freese (2011) and Spurk, Abele, and Volmer (2011) both use latent growth modelling to represent individual differences in developmental functions as deviations from the average developmental function (McArdle 1988; McArdle & Anderson 1990). Makikangas, Hyvönen, Leskinen, Kinnunen, and Feldt (2011) use growth mixture modelling for a similar purpose. Finally, the aforementioned study by Schaufeli *et al.* (2011) employs an innovative analytical framework, the so-called stability and change model, which allows partitioning of variance in burnout scores across time into stable and change components.

Special section papers using long-term developmental methodologies

Disentangling time-related effects from age-related effects is important in research in this area. In this context, the study by De Vos and Freese (2011, pp. 288–314) makes an important contribution. De Vos and Freese studied changes in newcomers' information-seeking activities regarding their psychological contracts. The socialization literature highlights that these behaviours are relevant to the psychological adjustment of newcomers in organizations in general and to their experiences of psychological contract fulfilment in particular. The authors showed that for different targets of information-seeking behaviour (such as supervisors, mentors, colleagues, and other newcomers), different patterns of change occur over time. Moreover, such patterns also were found to depend on the newcomer's age when entering the organization. This points to the importance for organizations to take the age of their newcomers into account in the socialization process. Latent growth analysis as applied by the authors was well suited to analyse effects of time and age, both independently and in relation to each other.

Spurk *et al.* (2011, pp. 315–326) tested the adequacy of the widely used Career Satisfaction Scale (CSS) for measuring change over time (over a 5-year period) in a large sample of professionals, using the technique of multiple indicator latent growth modelling. They concluded that the CSS is a reliable instrument that is valid for use in change analyses. The measurement quality of the instrument is largely invariant across time. Moreover, the authors managed to identify intra-individual growth trajectories and a negative correlation between initial level and changes in career satisfaction. Mean career satisfaction appears to be rather stable, even though individual workers experienced quite different latent growth trajectories. Such time- and change-related validation of instruments used in the field is still relatively rare but obviously a necessary step towards better research on long-term development in work and career issues. Follow-up research into the possible antecedents of career satisfaction and long-term change therein could help us to better understand possible causes of premature retirement and, conversely, how to guide life-long employability. An important question for the future is whether evidence can be found for processes involving gamma change in the development of work-related motives and values over time related to career changes.

In the last contribution to the special section by Makikangas and associates (2011, pp. 327–346), Growth Mixture Modelling (GMM) is used in a three-wave 10-year follow-up study on intra-individual change trajectories in job-related affective well being among managers (in relation to career disruptions such as periods of unemployment or lay-offs and perceived job insecurity). Recently, researchers have begun to explore techniques aimed at analysing more complex and dynamic models for assessing change (Collins & Sayer 2001). GMM (Muthén 2001) combines categorical and continuous latent variables

into the same model and is an adequate technique for capturing the mean level of stability/change of variables of interest in sub-groups. The authors' results highlight both typical and untypical development trajectories of job-related affective well-being and related career characteristics. Patterns of change in job-related affect over time are shown to be quite varied. Also, different kinds of affect can concur over time in employees. This runs counter to the idea that some patterns of affect might preclude others. Such mutual exclusiveness of affect is not confirmed by the results of this study.

Now that the papers in this special section have been introduced, we turn to possible implications for practice of the studies presented and conclude with an agenda for future research in this area.

Practical implications

The six papers in this special section shed light on stability and change over time in several important work-related phenomena, such as burnout, job-related affective well-being, career satisfaction and career characteristics, newcomer information/seeking behaviours and psychological contract fulfilment, age-related health and generativity, as well as developmental work motives. Although these concepts do not of course cover the entire range of work-related processes that can change over time, they can be considered prototypical examples of positive as well as negative organizational behaviour concepts. Insight into the development of these short-term and long-term processes over time yields recommendations for 'lifespan-aware' Human Resource Management (HRM) policies and practices at the societal and organizational levels.

On the one hand, such recommendations are quite general, as the results of the studies included in this special section confirm and underline general patterns of findings already established in the literature. Examples are the changes in health- and work-related motives that occur in employees over time and have an impact on their motivation and well being. Organizations, managers, and HR officers should take such general patterns into account in their activities and policies.

On the other hand, the studies included in this special section also deliver quite specific results that have implications for practice. This is, for example, the case for the influence of early career patterns on the later career, processes happening in critical phases such as job entry, and the question how to break through a loss cycle. These results have implications for the way individual employees, or individual employees in interaction with the persons who coach, guide or manage them, can deal with these changes over time. The finding that when career satisfaction peaks rather early in the career, this often goes together with a faster decline later in the career makes it possible to prepare or train employees on how to build a lasting high level of career satisfaction and how to manage expectations and coping skills as to the possibility of decline. We learned that communication between employer and employee is of utmost importance in critical phases in the career, such as job entry. In addition, especially for workers in highly demanding jobs, such as physicians, who have to survive heavy patient demands over a longer period of time, it seems to be important to train them in necessary communication and political skills that manage the physician-patient relationship.

Future research agenda

This special section comprises six articles that illustrate theoretical and methodological advances in the research field of long-term work-related development. The papers

included in the special section each contribute in their own way to advancing the discipline. Nevertheless, many important leads for future research remain and are reinforced by the papers included. With this special section of JOOP, we aim to contribute to both academic progress and to improving HRM practices in work organizations and society as a whole.

Work and organizational psychology will surely benefit from the increasing attention for theory development in lifespan developmental psychology. Overall, to further enhance our knowledge of long-term intra-individual development in work behaviour requires the following:

First, it requires a two-pronged approach combining theoretical and methodological advances. We need theory-based testing with carefully designed longitudinal empirical studies (see, e.g., the three theoretical papers included in this section), as well as grounded approaches using empirical data to develop new theories.

Second, we believe that applying the typology of common patterns of change/stability as developed by Garst *et al.* (2000) to assess typical growth curves for important occupational and organizational concepts over time will help the further development of theories on these concepts.

Third, empirical studies are needed to assess degrees of individual variability in growth curves and the causes of these differences. Growth curves can, e.g., be categorized as linear processes, up- or downward ('burning candle'), curvilinear, from small to broad or the other way around.

Fourth, more attention should be devoted to studying processes of renewal and rejuvenation. How can employees (re)develop engagement over time, for example?

Fifth, the interactions between different levels and different areas deserve closer examination. Can losses in one area be compensated by gains in another? How do these interactions work out over time? It would be worthwhile to assess which typical interactions occur and how they can be described (e.g., as positive or negative spirals of processes on different levels that reinforce each other, the occurrence of plateau effects, etc.).

A special area of interest could be the study of long-term change patterns in short-term dynamic processes. Currently, diary methods in work and organizational psychology are stimulating a closer look at day-level and week-level processes (Ohly, Sonnentag, Niessen, & Zapf 2010), for instance, in relation to work demands, effort/proactivity and recovery (Fritz & Sonnentag 2009; Sonnentag 2005), and in relation to job satisfaction, mood, and affectivity at work (Ilies & Judge 2004). Psychological research on aging suggests that especially such systematic short-term dynamics may change considerably with aging, due to underlying mechanisms of change in functional capacities and/or motivations (Ram & Gerstorf 2009). In fact, specific research designs that combine short-term and long-term longitudinal sampling are available to study such types of change appropriately.

As this list of future research options makes clear, 'long-term intra-individual development in work behaviour' is really an emerging field of study: much work still needs to be done, carried forward by theoretical as well as methodological innovations. In this respect, it is important to note that research in this area involves sophisticated measures, research designs, and data collection. This requires significant investments in terms of money, effort, and intellect. Some researchers in the field have suggested, however, that all this sophistication cannot capture the natural way that humans deal with such complexity, principally by telling narrative stories about their lives. Only the full autobiographical complexity of such narratives may provide the qualitative information

that is essential for furthering insight in long-term intra-individual developmental patterns in work and career behaviours (Bruner 2004).

Conclusion

With this special section of JOOP, we wish to contribute to the advancement of theory and methods available to work and organizational psychologists in trying to better understand the unfolding of work and career over time.

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