Age Diversity and Team Effectiveness

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Lessons Learned

Increasing age diversity in work groups due to demographic changes in recent decades raises the question of whether age diversity benefits or harms teamwork. According to the social categorization approach (Tajfel and Turner 1986), age diversity in teams is problematic because it is likely to lead to a formation of subgroups (young vs. old) within teams. This, in turn, could activate age-related stereotypes and emotional conflicts that might deteriorate group effectiveness. In contrast, models of information processing (Kerschreiter et al. 2003) posit that

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age diversity is beneficial for team effectiveness because age related differences in knowledge, motives, and work styles promote elaboration on task-related information that could lead to enhanced group effectiveness, particularly in tasks requiring innovation and complex decision-making. Recent research provides support for both perspectives, suggesting that these seemingly conflicting theoretical formulations address different aspects of the psychological processes through which diversity influences team outcomes. Building on this insight, we developed a new model of effectiveness in age diverse teams that integrates both theoretical approaches. Aiming to shed light on the conditions and processes that determine and account for the relationship between age diversity and team effectiveness, our model describes several mediator (e.g. salience of age differences) and moderator variables (e.g. task complexity). We tested the model using data from more than 745 natural teams with 8,848 employees in three occupational sectors (car production, administrative work, financial services). In addition, central propositions of this model were examined with a representative survey of the German workforce (N = 2,000). Based on our findings, the following seven recommendations for effective use of age diverse teams were derived:

- Provide complex team tasks without high time pressure
- Reduce age diversity salience in teams
- Establish a positive team climate
- Promote high appreciation of age diversity in teams
- Reduce age stereotypes and age-discrimination at work often enacted by supervisors
- Promote the use of age-differentiated leadership
- Improve the ergonomic design of work places within teams

In order to support the application of these recommendations in organizational practice, we designed and evaluated a new training for supervisors using a sample of 47 supervisors (221 employees) working in tax offices. This training program aims to reduce age stereotypes, to enhance appreciation of age diversity, and to develop strategies for effective use of age-related differences in experience and knowledge. It was found that the training program successfully reduced age stereotypes and team conflicts and enhanced innovation and health. In addition, we developed a new leadership questionnaire for assessing age-differentiated leadership. Based on the consistent results of our studies we conclude that effective interventions for the integration of elderly employees in work groups are available and that combinations of measures that address the best team composition, leadership processes and ergonomic design issues in teams are strongly recommended.

Introduction

The composition of a team is an important determinant of team effectiveness (Wegge 2003). Indeed, given current demographic changes, team age composition and its effects on group functioning is of growing interest to researchers. The main

reason for the special interest in age diversity is the expected increase in age diversity in the coming years due to demographic changes that include a trend towards an earlier entrance into the job market as well as a later retirement. As a consequence, much younger employees will have to work with much older colleagues.

In recent years, a growing number of studies reported a negative relationship between age diversity in teams and various indicators of team effectiveness (see Wegge and Schmidt 2009, for a review). For example, in their meta-analysis, Joshi and Roh (2009) found a negative correlation between age diversity and team innovation, job satisfaction, and performance. In contrast to these studies, some empirical findings indicate a positive relationship between age diversity and performance or innovation (Wegge et al. 2008). However, there are only a few studies that investigated potential mediators and moderators of this relationship (e.g. Jehn 1995; van Dick et al. 2008). Whereas the positive effects of age diversity fall in line with expectations drawn from models of information processing in groups (Kerschreiter et al. 2003), the negative effects of age diversity are in accordance with the social categorization theory (Tajfel and Turner 1986). In an attempt to bridge between these two general perspectives, van Knippenberg et al. (2004) integrated these two theoretical approaches into a single model that emphasizes the role of social categorization processes as well as information elaboration in determining and driving the impact of team diversity on team outcomes. Consistent with this integrative perspective, we developed a new model that describes mediating and moderating processes *specific for age diversity in teams*. In addition, based on the insights gathered from testing this model, we designed and evaluated a new training program for supervisors.

State of the Art

According to the concept of diversity as "separation" Harrison and Klein (2007) define age diversity as the degree to which the age of all group members differs within the group. In that sense, age diversity is at its minimum if all group members are at the same age, as maximum separation of diversity occurs when the group is split into two subgroups at both ends of the age continuum (i.e. the older and the younger). To measure age diversity as separation, the standard deviation of age of all group members would be the most appropriate statistical measure (Harrison and Klein 2007). We use this conceptualization of age diversity throughout this chapter.

Both the social categorization theory (Tajfel and Turner 1986) and models of information processing (Kerschreiter et al. 2003) predict age diversity to have a significant impact on several team processes and outcomes. However, the two theories differ in the underlying mechanisms they ascribe to these effects. In particular, whereas the social categorization perspective posits that age diversity exerts its effects via the salience of age differences in teams (e.g. the activation of age categories as the basis of self-definition), models based on the information

processing perspective suggest that age diversity influences team functioning due to the inherent differences between older and younger persons with regards to knowledge, skills, and experience.

According to the social categorization theory, when age differences among group members become salient, age as a demographic category is likely to be used to describe one's group members (Bell et al. 2011). The probability that age diversity becomes salient is supposed to be higher the greater the age differences among group members are. Further, the salience of age diversity promotes the emergence of two age homogeneous subgroups (e.g. the older and the younger). In its extreme manifestation, this process of sub-categorization may result in in-group favoritism and out-group discrimination and exclusion. Moreover, these processes are known to be strengthened by age stereotypes. Age stereotypes are attributes assigned to people within a specific age category. On the one hand, they are supposed to guide people in social interactions. For example, having the stereotype that older people's hearing is poor might result in automatically adapting one's volume of speech. On the other hand, stereotypes are often based on partial knowledge about changes in skills, competences and motives with increasing age (Hassell and Perrewe 1995). In fact, many age stereotypes are colored negatively. For example, people expect older employees to be inflexible, to be reluctant to change, and to underperform (Kite et al. 2005). Despite the predominance of negative age stereotypes against older people, there are also some negative prejudices against younger employees, including presuppositions about younger employees' lack of experience, patience, or social competences (Hummert 1999). As mentioned above, it is likely that age stereotypes will be activated when age diversity becomes salient within work groups. Because of the negative nature of most stereotypes, devaluation of the out-group will likely result. Such evaluations and cognitive biases are expected to be reflected in emotional conflicts among group members. Emotional conflicts in age diverse teams refer to tensions between older and younger group members on a relational level, which are distinct from conflicts with respect to the task. Emotional conflicts within a work group consume important resources like attention and time to deal with the group task. Furthermore, they are likely to impair interactions among group members. As a consequence, team effectiveness will suffer (Dewitt et al. 2012; see chapter Age-Related Differences in the Emotion Regulation of Teachers in the Classroom, Philipp and Schüpbach).

Models of information processing in groups lay out different propositions about the mechanisms through which age diversity influences team functioning. Whereas social categorization theory refers to negative and incorrect age stereotypes, information processing models relate to factual differences in task experience as well as task and methodological knowledge. In many studies, such different task perspectives or work styles are described as cognitive conflicts (Kerschreiter et al. 2003). Models of information processing in groups posit that cognitive conflicts mediate the relationship between age diversity and positive effects for team

performance. However, we expect this positive relationship between cognitive conflicts and team effectiveness to be dominated by social categorization processes quite often since negative age stereotypes are very prominent (Kite et al. 2005). Thus in general, we expect not only a negative correlation between emotional conflicts and team performance but also a negative correlation between cognitive conflicts and team effectiveness. The positive impact of cognitive conflicts is supposed to be restricted to specific team conditions described in the following sections.

Hypothesis 1: The relationship between age diversity in teams and team effectiveness will be mediated by salience of age diversity and emotional/cognitive conflicts. Specifically, higher age diversity will enhance salience; salience, in turn, will result in higher emotional and cognitive conflicts. Both types of conflicts are supposed to decrease team effectiveness on various indicators.

Hypothesis 2: The relationship between the salience of age diversity and emotional conflicts will be mediated by age stereotypes. Specifically, the higher age salience is the more age stereotypes will come to mind; the increase in age stereotypes, in turn, will yield higher emotional conflicts.

Based on the above mentioned theories and additional insights from team composition research (see Wegge 2003; Wegge and Schmidt 2009, for a more comprehensive discussion), we have considered four moderator variables in our model that influence interaction between team members and are supposed to have an impact on both social categorization as well as information processing in teams. These are team climate, appreciation of age diversity, task complexity, and age discrimination.

A positive team climate is characterized by (1) a strong task orientation (e.g. team members pursue high quality task performance), (2) a safe and trustful environment (e.g. team members are motivated to bring in new ideas), and (3) the invitation of all team members to develop and promote new and innovative ideas (Brodbeck et al. 2000). These characteristics of a team are supposed to enhance information exchange and information-elaboration among team members. In contrast, a lack of task orientation and trustful environment is expected to promote detrimental social categorization processes. In other words, negative team climate provides a fruitful platform for conflicts and inhibits a productive exchange of age related experiences and knowledge. In line with these arguments, we posit that:

Hypothesis 3: The relationship between age diversity and team effectiveness will be moderated by team climate. Specifically, the relationship is expected to be positive in teams with a positive team climate and negative in teams with a negative team climate.

Appreciation of age diversity "reflects the extent to which individuals believe there is value in age diversity" (van Dick et al. 2008, p. 1464). Such beliefs promote the exchange of information and knowledge among members of different

age groups. In that way, appreciation of age diversity prevents the building of age based subgroups and thus compromises the development of emotional conflicts. Furthermore, appreciation of age diversity is supposed to lead team members to solve existing conflicts successfully within their group. In contrast, such efforts to elaborate on age-related differences in work perspectives will hardly be found in work teams with a low appreciation of age diversity. Instead, the emergence of subgroups will be facilitated, and conflicts will flourish. As a consequence, team effectiveness is expected to decrease with respect to behavioral and emotional indicators. Thus, the following hypothesis was derived:

Hypothesis 4: The relationship between age salience and team effectiveness will be mediated by conflicts such that higher age salience yields higher conflicts and is detrimental for team effectiveness. Moreover, this mediation should be strengthened by a low appreciation of age diversity (mediated moderation effect).

Moreover, the exchange of age related differences in knowledge and expertise should be especially beneficial if the group task requires *complex decision making*. Otherwise, the existence of conflicting task perspectives of older and younger team members should be detrimental for team effectiveness (see chapters Age-Differentiated Work Systems Enhance Productivity and Retention of Old Employees, Zwick et al.; Successful Aging Strategies in Nursing: The Example of Selective Optimization with Compensation, Müller et al.). In line with these arguments, we suggest that:

Hypothesis 5: The relationship between age diversity and team effectiveness will be moderated by task complexity. Specifically, this relationship will be positive under conditions of high task complexity and negative under low task complexity.

Age discrimination occurs when "individuals are refused employment, dismissed from jobs, paid less, or denied promotions, trainings, or other benefits because of their age" (Warr 1994). This, in turn, can lead to a low self-esteem of the discriminated subgroup (Hassell and Perrewe 1995) and has been shown to be detrimental for well-being. In diverse teams, discriminated subgroups perceive a threat to the social identity that increases intergroup biases and, in turn, the negative impact of diversity. In our project we examine whether age discrimination enhances negative effects of age salience on health and we propose that:

Hypothesis 6: The relationship between the salience of age diversity and team effectiveness will be moderated by age discrimination, such that age diversity will be negatively associated with team effectiveness, especially well-being, under conditions of high age discrimination.

In sum, our basic research model is depicted in Fig. 1.

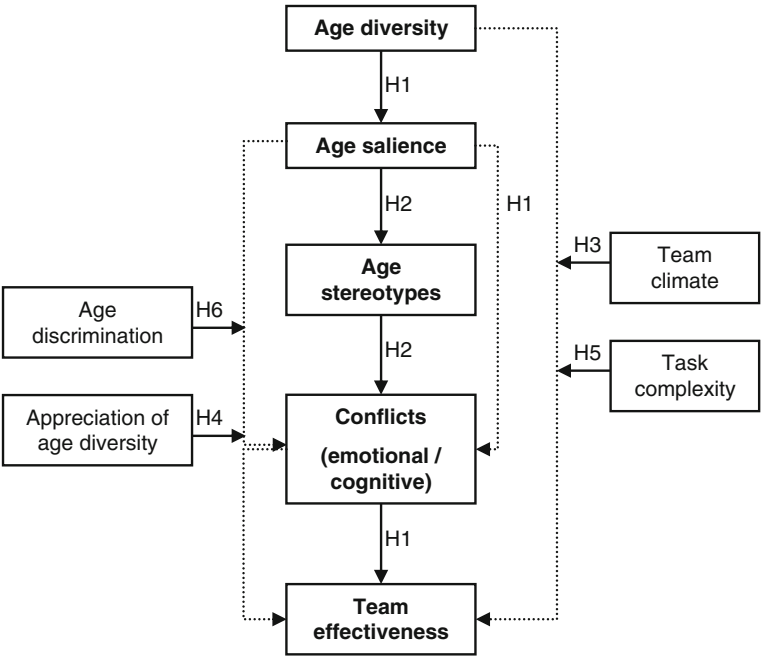

Fig. 1 Main propositions (H1–H6) derived from the ADIGU model. *Spotted arrows* visualize the specific relations investigated in the single studies. *Stressed arrows* mark the supposed relations within the whole ADIGU model

Samples/Methods/Instruments/Procedure

Samples

Several (longitudinal) studies were conducted to examine the validity of the integrative model (see Fig. 1). Due to restrictions in data collection in some fields, it was not always possible to assess the complete set of variables at all points of measurement. Three different types of teams were analyzed in this project (see Table 1).

First, we studied administrative teams working in pension- and tax-offices in North-Rhine Westphalia in Germany. The main tasks for employees in the pension offices include processing requests concerning child-rearing allowances as well as allowances for severe disabled persons. The main tasks for employees in the tax offices include processing tax computations. In both pension- and tax-offices, work is organized in teams and all employees work in front offices. Every team has to deal with similar tasks, but there are slight differences in the number of cases

Table 1 Overview of all samples

	2005	**2006**	**2007**	**2008**	**2010**
Administrative teams					
Pension offices[a]		$N_{team} = 66$ $N_{employee} = 410$	$N_{team} = 51$ $N_{employee} = 281$		
Tax offices[a]		+ archival data (2003) $N_{team} = 222$ $N_{employee} = 4{,}538$	$N_{team} = 157$ $N_{employee} = 722$ $N_{supervisor} = 139$	$N_{team} = 80$ $N_{employee} = 397$ $N_{supervisor} = 82$	$N_{team} = 47$ $N_{employee} = 221$ $N_{supervisor} = 28$ Extended questionnaire[b]
Financial service teams[c]	$N_{team} = 259$ $N_{employee} = 2{,}337$	$N_{team} = 246$ $N_{employee} = 2{,}468$	$N_{team} = 247$ $N_{employee} = 2{,}514$	$N_{team} = 236$ $N_{employee} = 2{,}384$	
Car production teams[c]					$N_{team} = 56$ $N_{employee} = 623$
German workforce[d]					$N_{employee} = 2{,}000$
	2010 Pre	**2011a** Post 4 months	**2011b** Post 12 months		
Training with tax offices					
Training group	$N_{supervisor} = 16$	$N_{employee} = 109$	$N_{team} = 19$	The same for all three measure points	
Waiting group	$N_{supervisor} = 8$	$N_{employee} = 112$	$N_{team} = 17$	The same for all three measure points	

[a] Standard questionnaire: age diversity, age salience, emotional and cognitive conflicts, burnout, innovation, team identification, job satisfaction, team climate, task complexity, appreciation of age diversity

[b] Extended questionnaire: additional data of age stereotypes, age discrimination

[c] Data from company's personnel records on demographics, performance and turnover or absenteeism (car production)

[d] Phone interviews: age diversity, age salience, age stereotypes, age discrimination, appreciation of age diversity, health status

depending on team size. Besides predetermined rules to process single cases, teams have to organize the assignment of cases on their own. Furthermore, single cases were usually handled by several team members together.

Sample statistics of pension-offices. Data from pension-offices were collected at two different times. Because of the structural reorganization of all pension-offices, it was not possible to collect additional data. In 2006, 66 teams (n = 410 employees) participated in the investigation. Fifty-one teams participated in the survey one year later, in 2007 (n = 281 employees).

Sample statistics of tax-offices. Data from tax-offices were collected at several times. In this sample, additionally to team members' ratings of team processes, supervisor ratings were made available. In 2007, 722 employees and 139 supervisors from 157 teams completed the questionnaire. This questionnaire was also answered by 397 employees and 82 supervisors in 2008. In 2010, we administered an extended version of the questionnaire used previously. At this third point of measurement, 221 employees and 28 supervisors of 47 teams filled out the questionnaire. Additional data from a prior study (222 teams with n = 4,538 tax officers) were also re-analyzed (Wegge et al. 2008) to test basic assumptions of our model.

Second, we also gathered data from a large financial services consulting company in Germany over four years (see for example Shemla et al. submitted). Employees in this company work as individual consultants selling insurances and other financial products directly to their private and small enterprise customers. Consultants are organized within more than 230 locally separated teams across Germany. Within these teams, team members rely on and interact with each other such that they deal with the same product information and software and share a general secretary and a branch leader. Thus, these teams resemble a pooled type of teams. Team members also got together once a week for formal as well as informal meetings and exchange of information. Although they interacted with each other, team members made independent contributions to the team and their contributions were measured separately for each individual member.

Third, data from car production teams were available. The sample consisted of employees working on the final assembly line (Fritzsche 2010; Fritzsche et al. submitted). Each of the work teams are responsible for a certain section of the production line and thus spread across different workstations. Usually, team members rotate between workstations within their team. Demographic, innovation, and performance data as well as data on absenteeism were collected in 56 teams (n = 623).

Finally, in order to test the generalizability of the ADIGU model, a representative survey of the German workforce was conducted (n = 2,000, see Wegge et al. 2011a).

Measures

The questionnaire used in the project consisted of all variables of the ADIGU model depicted in Fig. 1. Whereas some of the scales were drawn from valid German measures, others were adapted from measures in English. In the following, a brief overview of all scales is given (see single publications for detailed information).

Age diversity. Following Harrison and Klein (2007) and their notion of age diversity as "separation", this variable was typically measured using the standard deviation of age within the teams. In the car production sample we measured age diversity also with the Blau-index and as part of a general faultline measure that included differences in gender and organizational tenure (Fritzsche 2010; Breu et al. 2010). The concept of diversity faultlines is based on the idea that alignment of multiple demographic differences between team members may cause a team to split into subgroups. Faultline strength was assessed using a statistical algorithm developed by Thatcher et al. (2003).

Salience of age diversity. We measured age salience using Wegge and Schmidt's (2009) 6-item scale that assesses the extent to which team members focus on age differences within the team (e.g. "Sometimes, I think about age differences in our team"). The response format of this scale ranges from 1 (*does not match*) to 5 (*matches totally*). As this scale is developed within the ADIGU project, all items are illustrated in Table 2. Alpha reliability of the salience scale ranged between Cronbach's $\alpha = 0.74$ (Liebermann et al. submitted) and Cronbach's $\alpha = 0.82$ (Ries et al. 2010a).

Age stereotypes. This variable was measured via six items assessing negative biased attitudes towards older employees (e.g. "Older employees of our team are less cooperative on the job than younger employees"). The items were adopted from Hassell and Perrewe (1995) and Kluge (2006). The response format ranges from 1 (*do not agree at all*) to 5 (*agree totally*). Alpha reliability of age stereotypes was $\alpha = 0.77$.

Conflicts. Two types of conflicts were measured using a scale by Jehn (1995). Cognitive conflicts (seven items) refer to the disagreement among team members with regard to task-related perspectives and attitudes (e.g. "Sometimes, members of our team disagree about opinions regarding the work being done"). Emotional

Table 2 Item description of salience of age diversity

No.	Item
1	If asked for a description of our team, age composition comes in my mind (e.g. three younger and two older colleagues)
2	Age differences between my colleagues are very present for me
3	Sometimes, I think about age differences in our team
4	Different age of team members are considered by team decisions (e.g. at task assignment)
5	If problems within our team arise, this is due to age differences in our team
6	We talk about the differences in age of our team members

conflicts refer to interpersonal clashes and hostile interactions between team members (e.g. "There are tensions among members of our team"). The response format ranged from 1 (*does not match*) to 5 (*matches totally*). Alpha reliability ranged between $\alpha = 0.88$ for cognitive conflicts and $\alpha = 0.92$ for emotional conflicts (e.g. Ries et al. 2010a).

Innovation. We assessed innovation using a scale by Janssen (2001). The seven items address the development, promotion and implementation of new ideas to deal with the group task (e.g. "Our team generates original solutions to problems"). Innovation was rated on a 7-point rating format (1 = *never*, 7 = *very often*). In the car production sample, innovation was measured using objective data. Specifically, based on the procedure for converting improvement ideas to production enhancement described by West (1990), two variables were measured in this study: the number of proposed ideas and the number of successfully implemented ideas. Alpha reliability of the Janssen-scale was $\alpha = 0.92$ (e.g. Ries et al. 2010a).

Burnout. We measured *emotional exhaustion* as a core dimension of burnout. The measurement comprises five items of an adopted version of the Maslach Burnout Inventory (Maslach and Jackson 1986). The items refer to physical and psychological reactions to work overload that are manifested in a negative attitude against work (e.g. "At the end of a working day, I'm feeling exhausted"). The response format of this scale ranges from 1 (*not at all*) to 5 (*very often*). Alpha reliability ranged between $\alpha = 0.89$ (Ries et al. 2012) to $\alpha = 0.93$ (Ries et al. 2010b).

Identification with the team. We assessed identification with the team using the scale from Mael and Ashforth (1992). The five items refer to group cohesion (e.g. "When I talk about this team, I usually say 'we' rather than 'they'") and response format ranges from 1 (*do not agree at all*) to 5 (*agree at all*). Alpha reliability was $\alpha = 0.75$ (e.g. Ries et al. 2010a).

Job satisfaction. We measured job satisfaction via three items from Neuberger and Allerbeck (1978) that cover satisfaction with global work, specific group task, and work environment. The extent to which group members are satisfied with those aspects was assessed on a 7-point rating scale (1 = *not right at all*, 7 = *absolutely right*). Alpha reliability was $\alpha = 0.85$ (e.g. Ries et al. 2010a).

Team climate. We used a scale from Moltzen and van Dick (2002) to assess team climate. The nine items refer to high task orientation and the degree of a trustful work environment (e.g. "In our team, everyone feels accepted and well-understood"). Response format is ranging on a 5-point rating format (1 = *does not match*, 5 = *matches totally*). Alpha reliability was $\alpha = 0.92$ (e.g. Ries et al. 2010b).

Appreciation of age diversity. We assessed appreciation of age diversity with a scale developed by Wegge et al. (2011b). The six items refer to the individual belief that a team may benefit from age diversity (e.g. "A team is more effective if its members have different age"). Intensity of appreciation of age diversity is rated on a 5-point rating format (1 = *does not match*, 5 = *matches totally*). As this scale was developed within the ADIGU project, all items are illustrated in Table 3.

Table 3 Item description of appreciation of age diversity

No.	Item
1	Our team profits from contributions from older as well as younger team members
2	In our team, one can learn new things from different perspectives of older and younger team members
3	In our team, we deal constructive with proposals from team members with different age
4	A team is more effective if its members have different age
5	A team is more functional if its members have different age
6	Team climate is better if team members have different age

Alpha reliability of the appreciation of age diversity scale was high ($\alpha = 0.84$ in Wegge et al. 2011b, and $\alpha = 0.84$ in Ries et al. 2012) suggesting that the scale is internally consistent.

Objective performance. Data gathered from the financial services company included three objective performance measures: (1) *commission target*, (2) *family target*, and (3) *new customers target*. Commission target indicates the level of commission that a consultant achieved based on their total volume of sales in a certain year. Family target refers to the acquisition of new customers and was assessed by the number of new acquired customers through existing ones during the same year. New customers target assessed the acquisition of new customers. For each consultant, the performance indicators were measured in percentage, such that 100 % was defined as the average of all consultants in the previous year. The company designed these measures deliberately in order to set challenging goals for all branches of the company and to make the performance of all consultants comparable. In the car production teams, performance was measured in terms of the number of assembly errors identified and registered by the quality management system.

In the representative survey of the German work population the following scales were used:

Age diversity was measured using a subjective scale assessing how participants rate the age-composition in their work teams. The four-point-rating scale ranged from 1 (*there are no age differences in my team (meaning the team members all are about the same age))* to 4 (*the team is very age-diverse, meaning there are young as well as old colleagues*).

Salience of age diversity and *age stereotypes* were measured using the same scales as in the administrative sample. Alpha reliabilities were $\alpha = 0.74$ and $\alpha = 0.79$.

Age discrimination in the workplace was measured using the Nordic Age Discrimination Scale (NADS; Furunes and Mykletun 2010). On six five-point rating-scales the subjects indicated the degree of age discrimination in their workplace with regard to promotion, training, development, appraisals, wage increases, and change processes. Alpha reliability was $\alpha = 0.79$.

Current health status was assessed with four items. First, participants had to rate their general health status on a five-point rating scale ranging from 1 (*very*

bad) to 5 (*very good*). Second, they were asked to indicate the number of days, within the last four weeks, in which they experienced physical and psychological impairments (items 2 and 3). Finally, they were requested to give the number of days within the last month when they were not able to accomplish their everyday activities (item 4). The health indicator was calculated using the mean of the four z-standardized items. Alpha reliability was $\alpha = 0.75$.

Procedure

Data collection. In the pension- and tax-offices samples data were collected with the questionnaire described above. In order to get these data, we visited all offices and instructed the employees in groups with 15–20 members about the purpose of the study and how to complete the questionnaire. The longitudinal data gathered at the financial services company were drawn from the company's personnel records and thus includes only objective measures.

Statistical analysis. Questionnaire data were collected on the individual level. First, they were aggregated to group level by averaging (except data from supervisors). To justify this procedure, we computed ICC(1) and ICC(2); all variables met the criteria of >0.12 for ICC(1) and >0.60 for ICC(2).

Second, we computed explorative and confirmatory factor analysis with SPSS and AMOS for every variable at each survey (pension- and tax-offices). We used Comparative Fit Index (CFI, >0.97), Global Fit Index (GFI, >0.95), Root Mean Square Error of Approximation (RMSEA, <0.08), Standardized Root Mean Residual (SRMR, <0.09) and Cronbach's Alpha (>0.70) for quality criteria. All scales were found to be sufficiently distinct with respect these indices.

Third, we checked correlations among all variables. They were all found to be in the proposed directions.

Finally, we carried out statistical analyses to test Hypotheses 1–6. To avoid multicollinearity we used standardized variables. Several statistical procedures were applied. One of these procedures was Structured Equation Modeling (SEM), estimated with Mplus. This method estimates the supposed indirect effects of the independent variables on the dependent variables through one or more mediators applying bias-corrected and accelerated bootstrap. Furthermore, we used hierarchical regression analysis to test mediation and moderation effects.

Results

The data analysis of this project is not completely finished yet. Thus, in the following, we can just present selected results to illustrate our basic findings.

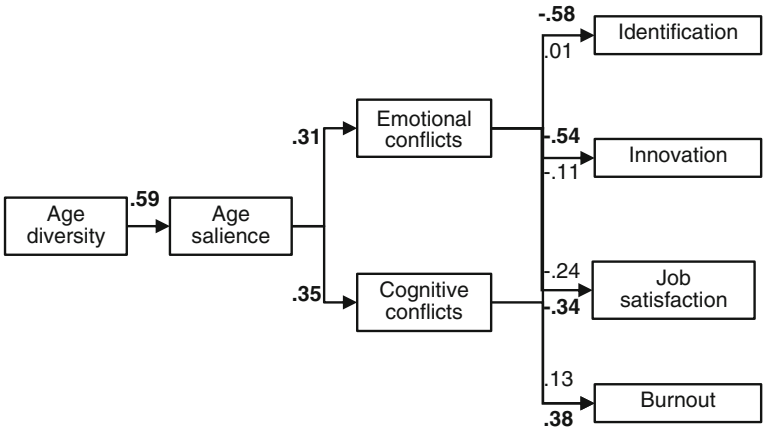

Fig. 2 Mediating effects of salience of age diversity and conflicts. The β above the arrows refer to emotional conflicts; the β below the arrows refer to cognitive conflicts. Significant ($p < 0.05$) parameters are stressed

Salience of Age Diversity and Conflicts

We analyzed the mediating role of age salience and conflicts in the relationship between age diversity and team effectiveness with SEM in Ries et al. (2010a). As illustrated in Fig. 2, an increment of age diversity leads to an increase in age salience. Age salience, in turn, goes along with higher emotional conflicts and cognitive conflicts. Interestingly, emotional conflicts have a negative influence on identification with the team (but not on burnout and job satisfaction). In contrast, cognitive conflicts exert a significant main effect on job satisfaction and burnout (but not on identification with the team and innovation). In sum, the model yielded a good fit, all expected paths reached significance and all relationships turned out to be in the proposed directions. Thus, our findings provide support for the mediating role of age salience and both types of conflicts.

Age Stereotypes

The mediation effect of age stereotypes within the relationship between age salience and both types of conflicts was tested with data from tax offices collected 2010. Results of regression analysis are summarized in Table 4. As expected, step one of the analyses revealed no significant influence of age diversity and gender on emotional and cognitive conflicts. Step two in the regression analysis yielded an

Table 4 Mediator effects of age stereotypes

	Conflicts (emotional) β	Conflicts (cognitive) β
Step 1		
Age diversity	0.19	0.05
Gender	−0.00	−0.04
Step 2		
Age salience	0.41*	0.50*
Step 3		
Age salience	0.17	0.20
Age stereotypes	0.40*	0.50*

* $p < 0.05$

important impact of age salience on emotional conflicts ($\beta = 0.41$, $p < 0.05$) and cognitive conflicts ($\beta = 0.50$, $p < 0.05$). Step three demonstrates that the significant relationship between age salience and conflicts disappears when age stereotypes are included in the model (emotional conflicts: $\beta = 0.17$, n. s.; cognitive conflicts: $\beta = 0.20$, n. s.). Therefore, age stereotypes were found to have significant influences on both types of conflicts (emotional conflicts: $\beta = 0.40$, $p < 0.05$; cognitive conflicts: $\beta = 0.50$, $p < 0.05$). Thus, the results reveal that age stereotypes mediate the relationship between age salience and emotional and cognitive conflicts, such that age salience increases age stereotypes, which, in turn, enhances emotional and cognitive conflicts. A very similar result was also found in Wegge et al. (2011a) for the German workforce. Here it was found that the negative impact of age salience on age discrimination at work was mediated by age stereotypes.

Age Discrimination

The postulated moderating effect of age discrimination on the relationship between age salience and health was tested using two steps (Liebermann et al. submitted). In the first step, age salience was found to affect health ($r = -0.16$, $p < 0.01$). This effect is even stronger when age discrimination in the team is high. The interaction between age salience and age discrimination also influences health ($r = -0.09$, $p < 0.01$), while at the same time age discrimination has an impact on health ($r = -0.08$, $p < 0.01$). When testing the moderation effect for different age-groups it is found that age discrimination only moderates the relationship between age salience and health for employees older than 45 years of age. Thus, our hypothesis is supported only for older employees (see also chapter Age Differences in Motivation and Stress at Work, Hertel et al. for similar age differences). Figure 3 depicts the moderating effect of age discrimination on the relation between salience and health for the age-group over 44 years.

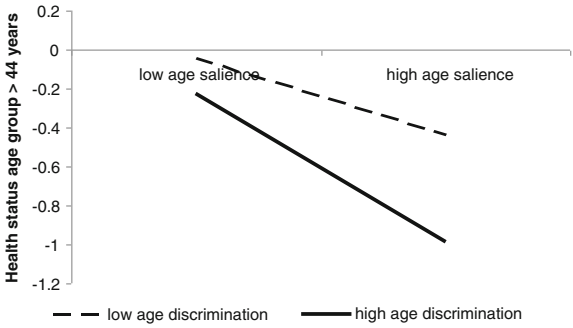

Fig. 3 Moderating effect of age discrimination (of employees ≥ 44 years)

Team Climate

The hypothesized moderating effect of team climate on the relationship between age diversity and team effectiveness was tested using regression analysis. In Ries et al. (2010b) team effectiveness was operationalized through burnout and innovation. With respect to innovation, ratings from both team members as well as supervisors were considered. As expected, team climate was found to have a significant main effect on team effectiveness. Thus, as team climate becomes more positive, burnout decreases and innovation increases, respectively. The interaction between age diversity and team climate also exerts an important effect on all three indicators of team effectiveness. To facilitate the interpretation of these findings, interaction plots were generated (Fig. 4). In support of Hypothesis 3, the relationship between age diversity and burnout was positive when team climate was bad and negative when team climate was good. The opposite interaction pattern was found for innovation ratings. The relationship between age diversity and innovation was negative when team climate was bad and positive when team climate was good. In sum, Fig. 4 portrays different regression slopes depending on the level of team climate. Thus, our results provide support for the moderating role of team climate (see also Roth 2008).

Appreciation of Age Diversity

We used regression analyses to test for the moderating role of appreciation of age diversity and the mediating impact of conflicts (e.g. Ries et al. 2012). To simplify our analyses, emotional and cognitive conflicts were combined into a single scale; this procedure was justified by factor analysis.

Conflict as a mediator. Analyses reveal a significant relationship between age salience and burnout ($r = 0.27$, $p < 0.01$) and innovation (employee rating: $r = -0.17$, $p < 0.05$; supervisor rating: $r = -0.21$, $p < 0.05$), respectively. Furthermore, age salience exerts an influence on conflicts ($b = 0.26$). Conflicts, in

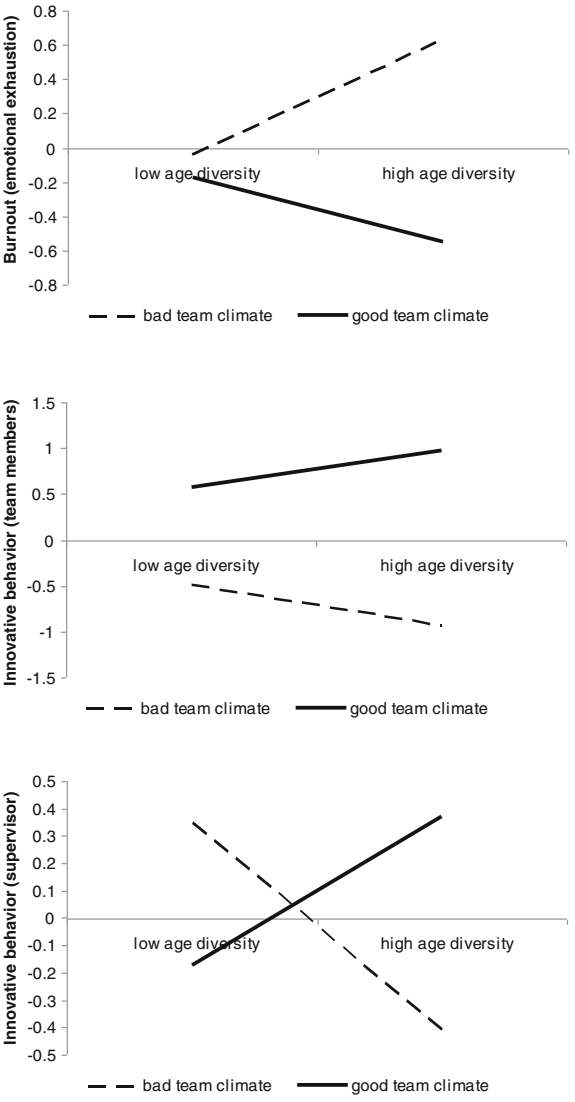

Fig. 4 Moderating effects of team climate

turn, are associated significantly with innovation (team members ratings) ($b = -0.23$) and with burnout ($b = 0.20$). Indirect effects of age salience on innovation ratings and burnout through conflicts demonstrate full mediation. In contrast, mediation of conflicts between age salience and supervisor ratings of innovation was not supported.

Appreciation of age diversity as a moderator. Correlations show a significant relationship between appreciation of age diversity and conflicts ($r = -0.51$, $p < 0.01$), innovation rated by team members ($r = 0.54$, $p < 0.01$), and burnout ($r = -0.35$, $p < 0.01$). Furthermore, the interaction between age salience and

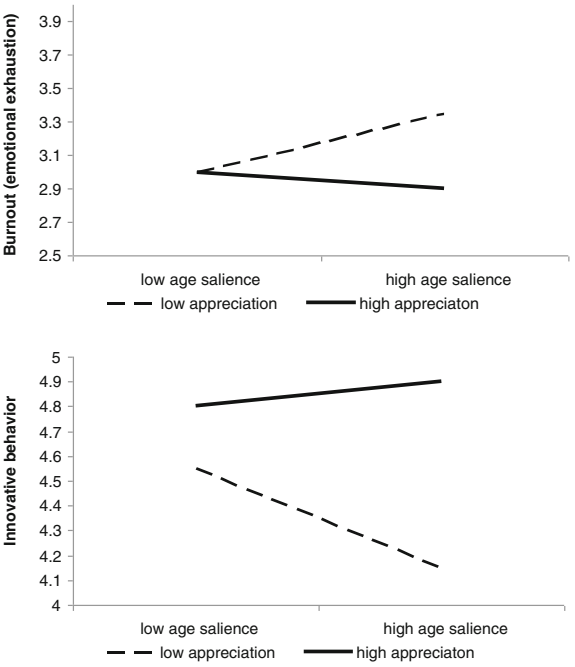

Fig. 5 Moderated mediation of appreciation of age diversity and conflicts

appreciation of age diversity has a significant impact on conflicts ($b = -0.17$). Similarly, the interaction between conflicts and appreciation of age diversity has a significant influence on innovation rated by team members ($b = 0.16$) and on burnout ($b = -0.13$). Thus, appreciation of age diversity moderates the relationship between age salience and conflicts as well as the relationship between conflicts and team effectiveness.

Specifically, the higher appreciation of age diversity is the lower are conflicts and burnout, and the higher is innovation (Fig. 5). In contrast to our expectations, the data do not support the moderating effect on supervisor ratings of innovation. The importance of appreciation of age diversity as a moderator variable was also supported in a cross-lagged panel analysis (Wegge et al. 2011b) and the dissertation of Roth (2008). Thus, this variable was included in the training that was developed in the ADIGU-project.

Task Complexity

The moderating effect of task complexity was examined using data from tax-offices as well as from financial service teams (Wegge et al. 2008). Examination of the tax-office data reveals positive correlations between age diversity and performance when teams engaged in complex decision making tasks ($r = 0.22$, $p < 0.05$).

In contrast, a negative correlation between age diversity and performance was found when teams engaged in routine tasks ($r = -0.19, p < 0.05$). This moderator effect of task complexity could be replicated by performance data collected one year later, demonstrating a long-range effect of task complexity. To the same token, only in teams working on routine tasks were health disorders positively linked to age diversity ($r = 0.21$, $p < 0.05$). In teams with complex tasks no relationship between age diversity and health disorders were observable ($r = -0.07$, n. s.). These results are in line with postulations drawn from information processing models, suggesting that diversity can positively impact performance outcomes when teams have to fulfil complex tasks. These positive effects of age diversity could also be confirmed when looking at the average team performance in the financial service teams. Our findings reveal, for example, a significant positive correlation ($r = 0.13, p < 0.05$) between age diversity and performance in the year 2005 (Shemla et al. submitted). This effect was hypothesized because selling a large number of different financial products to private and small enterprise customers requires complex and creative decision making.

Ergonomic Design in Team Work and Age Diversity

Prior research suggests that appropriate ergonomic workplace design may reduce the decline of productivity in aging employees working at paced assembly lines (Fritzsche 2010; see chapter Assembly Tasks in the Automotive Industry: A Challenge for Older Employees, Frieling et al.), We also had the opportunity to investigate the simultaneous effects of both team level factors on individual absenteeism (time lost and frequency) and team performance (22,821 errors) over one year in a sample of 56 natural car-manufacturing teams (n = 623). Results show that age was positively associated with absenteeism and mistakes in work planning. In contrast, controlling for physical workload, it was found that age diverse teams were more effective than age homogenous teams, but only if diversity was measured as a balanced mix across age categories (Blau-index) rather than as separation of old and young (standard deviation, SD). Hierarchical linear modeling (HLM) analyses further demonstrated that productivity was most strongly affected by workplace ergonomics because high physical workload amplified age-related increases in absenteeism and was associated with more assembly errors (Fritzsche et al. submitted). These results indicate that both team diversity and ergonomic workplace design may reduce age-related productivity risks in manufacturing by maintaining the work ability of older employees and improving production quality.

Training for Supervisors

In the following section we present the development and evaluation of a new training for supervisors, which aims to improve attitudes towards older employees, reduce salience of age differences among team members, improve team performance, and provide practical advice to companies for a successful management of the aging workforce. Section Conceptualization of a Supervisors Training addresses the development of the training. The second part (section Evaluation of the Training) describes the way in which the training was evaluated and provides first results of that evaluation.

Conceptualization of a Supervisors Training

Based on the aforementioned results, we developed a new modular training for supervisors. The training was developed by an expert team, consisting of scientists and future instructors, designated leaders of the potential audience and several members of an in-house HR development team. Potential topics and the design of the training were intensively discussed, as well as some components of the training (such as case studies) were adapted to typical situations in everyday work of the supervisors to ensure understanding and prepare for transfer of topics into work-life. The training consists of two modules that build upon each other and is planned for two days (see Table 5 for an overview of topics). It primarily addresses supervisors who already have to manage age-diverse teams; on the other hand, supervisors of age-homogeneous teams can use the training to prepare for future tasks with age-diverse teams. Both modules are presented in the following (see Table 5).

First module: Recognizing age diversity as a resource. The first module aims at sensitizing supervisors for the topic and providing them with the required knowledge. In particular, the following aspects were addressed: First of all, participants of the training developed a definition of diversity and received information on the relationship between age and health, as well as on age-related changes in learning abilities, motivation and social skills (referring to the positive, correct age stereotypes). Second, they learned about age diversity as a resource that may exert a positive impact on team outcomes by eliciting cognitive conflicts, as often described in models of information processing. To enhance the elaboration of the presented input, participants applied the information within their teams.

Second module: Practical implications of age diversity as a resource. Building on the background laid out in the first module, in the second module the supervisors were instructed to discuss strategies for dealing with age diversity and draw practical implications for their everyday work life. The second training module consists of three subjects: promotion of age-differentiated leadership, reduction of age stereotypes and enhancement of appreciation of age diversity. In all three

Table 5 Overview of training topics

	Module	Topics	Methods
Training (2 days)	*Module I*		
	Recognizing age diversity as a resource	• What is diversity?	
	Focus:	• How can a team benefit from diversity?	• Presentation of information
	Definition and consequences of age diversity	• What factors influence the relationship between diversity and team effectiveness?	• Group discussion
	Module II		
	Practical implications of age diversity as a resource	• What changes in performance/motivation/ competences are linked to age and how can they be used for age-differentiated leadership?	• Presentation of information
	Focus:	• What are age stereotypes and how can they be diminished?	• Exercises
	Acquisition of practical guidelines	• What is appreciation of age diversity and how can it be enhanced?	• Case study
Booster session (1 day)	*Module III*	• Recapitulation and reflection of main topics from the training	• Group discussion
	Recapitulation and reflection	• What problems evolved in applying practical guidelines from the training session?	• Coaching/ intervision

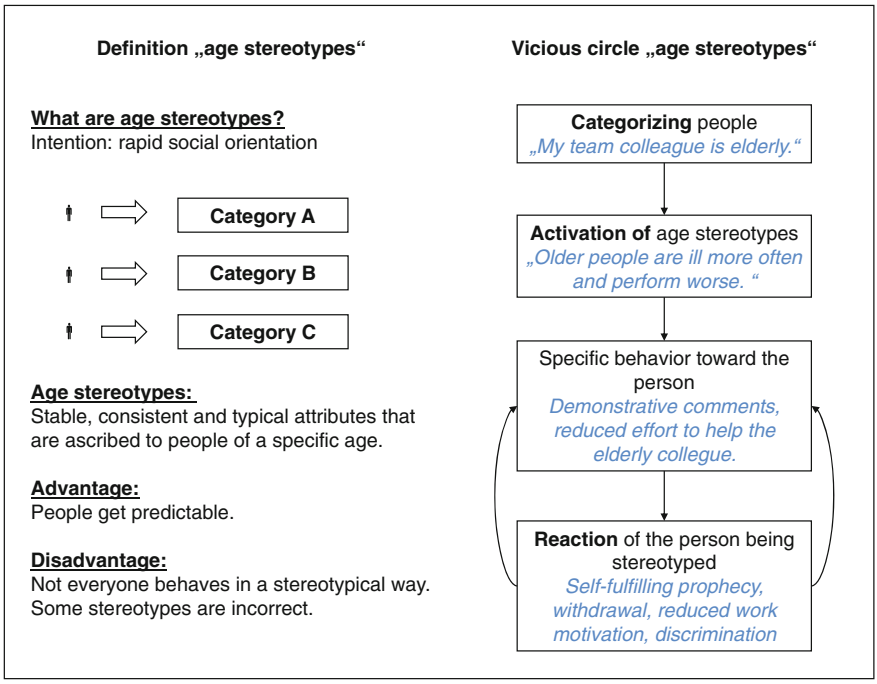

Fig. 6 Two examples of information provided in the module “age stereotypes”

subjects, the course of instruction was similar. At the beginning, supervisors were informed about facts concerning age-related changes (with regard to health, learning abilities, motivation and social skills, but in more detail than in the first module), the definition and vicious circle of age stereotypes, and appreciation of age diversity (see Fig. 6 for an example). Thereafter, supervisors discussed communication styles to promote age-differentiated leadership, age stereotypes, and appreciation of age diversity. Finally, they were instructed to develop practical guidelines based on the information provided. Again, participants applied this information in their own teams. To gain a deeper impact on behavioral changes, group discussions, group work, and case studies dominated this second training module.

Booster session. Four months after the training, a single day booster session was carried out. After a brief recapitulation of the main training topics, problems that the supervisors had experienced in applying the training topics to their leading routine were discussed. At the end of the session, strategies that supervisors found most promising for dealing with age diversity were summarized.

Evaluation of the Training

Method

The training evaluation was conducted with 47 supervisors (221 employees) working in tax-offices in North Rhine Westphalia, Germany (Jungmann et al. 2011). For evaluation purposes, participating supervisors were split into a training group (23 supervisors of 109 team members) and a waiting control group (24 supervisors of 112 team members). It was ensured that participants from the training and waiting groups were not drawn from the same tax-office to avoid a spill over effect. We excluded teams that consisted of less than three team members and in cases where data were not available for pre- and post-measures (see below). Thus, we obtained data from 36 teams (19 training groups and 17 waiting groups) and 24 supervisors (16 in training group and 8 in control group). For the training group, the average age of the team members was M = 41.1 years (SD = 11.0) with an average tenure of M = 21.9 years (SD = 11.6). The percentage of women was 69.9 %. Team size ranged from 3 to 7 members with an average team size of M = 4.8 (SD = 1.5). The average age of team members in the control group was M = 41.7 years (SD = 9.8) with an average tenure of M = 22.1 years (SD = 10.9). The percentage of women was 61.3 %. Team size ranged from 3 to 10 members with an average team size of M = 6.1 (SD = 1.9). There was no significant difference between both kinds of groups in regard to these characteristics. Two trained psychologists conducted the training. Both had been working with the subjects of this study in previous data collections and were involved in the development of the training modules. Data were collected before the training and four months after. An additional follow up measure was conducted 12 months after the training.

Results

The training had an impact on focal variables four months later, indicating decreased salience of age differences, increased appreciation of age diversity and reduced age stereotypes in supervisors. Supervisors' age stereotypes were slightly reduced in the training group between pre and post measure as compared with the waiting group. The changes are not statistically significant, but can be seen on a descriptive level, with the mean ratings falling from 1.85 at pre measure to 1.46 at post measure for the trained leaders. The waiting group did not show significant changes. The supervisors' ratings on appreciation of age diversity were enhanced in the training group compared with the waiting group. Again, changes were found on a descriptive level, but failed to reach statistical significance. Supervisors in the waiting group showed no significant changes. No significant changes revealed for the degree of age stereotypes and the appreciation of age diversity on the level of

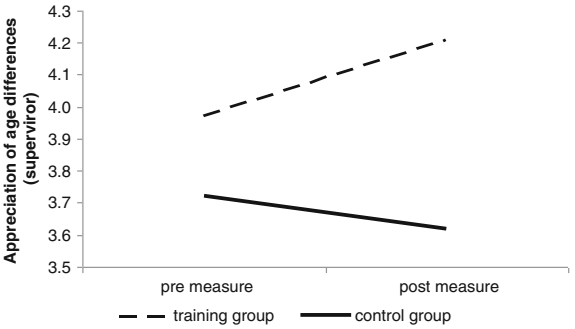

Fig. 7 Training effects on supervisors' rating of appreciation of age diversity

team members. However, there was a tendency of reduction in age stereotypes in groups of trained supervisors between pre- to post-measure.

Ratings of conflicts in teams and innovative behaviors as measures of team performance in groups of trained supervisors were also positively influenced. There was a significant decrease in the trained supervisors' ratings of conflicts in the team, in such a way that trained supervisors reported fewer conflicts within their teams after the training ($p < 0.01$). No significant changes in ratings of conflicts were found for team members. Supervisors who participated in the training also reported higher ratings of the innovative behavior of their teams after the training ($p < 0.05$). The same pattern was found at the team member level ($p < 0.05$). Results are illustrated in Figs. 7 and 8.

As expected, the training had an impact on both trained variables and measures of team performance. The effects were small. Nevertheless, these effects are relevant, especially as attitudinal constructs such as stereotypes are often seen as stable and trait-like in social psychological research. Influences on team members can be seen, however, mostly in small degrees. We assume that four months are a short time for changes of attitudes and stereotypes. Changes in supervisors' attitudes have to manifest in their mindset before they subsequently imply changes in behavior and communication of supervisors. Therefore, the according actions of supervisors might be delayed and not be that predominant. Thus, even small effects

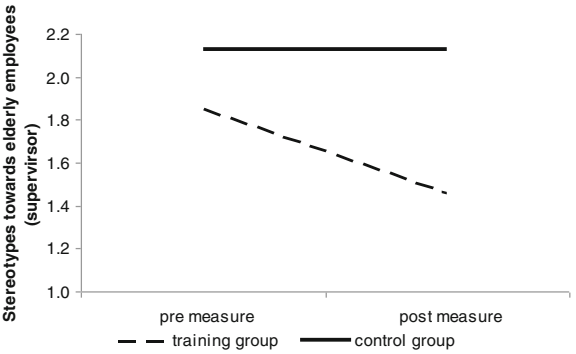

Fig. 8 Training effects on supervisors' rating of age stereotypes

should be seen as important. The data of the follow-up measures are not analyzed yet, but we expect changes on team members' level to be found at the follow-up measure.

Discussion

The main goal of the ADIGU project was to investigate the consequences of age diversity in teams. In particular, the relationship between age diverse teams and team effectiveness was studied, shedding light on several important mediators and moderators. These findings lend substantial support to the ADIGU model, which integrates the propositions drawn from both the social categorization and the information processing perspectives. In the following, the key conclusions of our empirical findings are summarized.

Mediators of the Relationship Between Age Diversity and Team Effectiveness

Analyses show full mediation effects of age salience (Ries et al. 2010a, Liebermann et al. submitted), age stereotypes (Wegge et al. 2012), and emotional as well as cognitive conflicts (Ries et al. 2010a, 2012) of the relationship between age diversity and team effectiveness. Specifically, increasing age diversity in teams enhances salience of age differences in the team. In turn, increased salience of age activates age stereotypes, namely negative attitudes towards older employees. Such negative attitudes towards older team members then manifest in emotional conflicts as well as cognitive conflicts within the team, which may decrease several indicators of team effectiveness and well-being.

These findings are consistent with the principles of the social categorization theory. In line with this theory, age salience activates age stereotypes, which in turn give rise to emotional or relational conflicts, but also give rise to cognitive conflicts deteriorating team effectiveness. Maybe negative attitudes towards older team members stress invincible differences between work styles of older and younger employees. The measure of cognitive conflicts by Jehn (1995) focuses on such differences in work styles. Thus, it is not surprising that cognitive conflicts are associated with less identification with the team, less innovation, and higher burnout. This negative relationship between cognitive conflicts and team effectiveness has been established elsewhere (Dewitt et al. 2012; van Knippenberg et al. 2004) using similar measures. In contrast, models of information processing in groups suppose positive effects of cognitive conflicts. The lack of empirical support for that assumption may partly arise also from these methodological aspects, suggesting a need to construct a new scale to measure cognitive conflicts that

better fits the potential benefits of age related differences in work styles and perspectives on the task. Furthermore, inappropriate mind-sets may be involved in preventing teams from gaining the benefits of cognitive conflicts. The ADIGU project identified several factors that constitute beneficial and unfavorable mind-sets for age diverse teams. These moderators are discussed in the next section.

Moderators of the Relationship Between Age Diversity and Team Effectiveness

Age discrimination. Findings reveal a significant negative relationship between age salience and health as an indicator of team effectiveness (Liebermann et al. submitted). These negative influences of age diversity are enhanced by age discrimination. Although age discriminating behavior bears a risk for all age-groups, the moderation effect of age discrimination was demonstrated only for employees over 44 years of age. Age discrimination enhances the negative effect of subgroup building on the health of the older team members. When older workers are aware of age differences in a team, it depends on their perception of age discrimination in their workplace whether or not this salience would affect their health negatively. As proposed by the social-categorization theory, discrimination as a perceived threat to the in-group enhances the negative effects of diversity.

Team climate. Studies show a positive relationship between age diversity and innovation under the condition of a positive team climate (e.g. Ries et al. 2010b). The direction of that relationship is reversed under the condition of a negative team climate. Similarly, a positive team climate promotes a negative relationship between age diversity and burnout; otherwise, the relationship turns positive if team climate is negative. Thus, a positive team climate constitutes an important framework for teams to benefit from age diversity. Moreover, this study demonstrates the necessity of a model that integrates both perspectives—social categorization and information processing—as was done by the ADIGU model.

Appreciation of age diversity. In addition to the mediation of conflicts in the relationship between age salience and team effectiveness, appreciation of age diversity was found to moderate this relationship (Ries et al. 2012; Roth 2008; Wegge et al. 2012). In particular, when appreciation of age diversity is low, the relationship between age salience and innovation is negative and mediated by conflicts. Similarly, the relationship between age salience and burnout is positive under the condition of a low appreciation of age diversity. In contrast, the mediation effect of conflict diminishes if appreciation of age diversity is high. Thus, a low appreciation constitutes a risk factor in age diverse teams while a high appreciation of age diversity marks a protective resource.

Task complexity and ergonomic design of team work. Our findings show that there is a positive relationship between age diversity and team performance in teams engaged in complex tasks (Roth et al. 2006; Wegge et al. 2008). This relationship

turns negative in teams engaged in routine tasks. Thus, the potential benefits are dependent on the group task. This may explain why cognitive conflicts do not promote team effectiveness in general, but only if the group task requires different cognitive perspectives. Moreover, it was also found that ergonomic workplace design may reduce age-related productivity risks in manufacturing by maintaining the work ability of older employees and improving production quality in addition to a balanced team composition regarding age of team members.

General Reflections

Findings from the ADIGU project replicate and extent single results from prior research, fitting these results into an integrative theory. In addition to the identification of several mediators and moderators, the present findings generalize prior results from teams in the management area to administrative teams and teams within the production sector.

In the course of our research we have come to the conclusion that two constructs have an especially important role in driving the effects of age diversity on team functioning. First, appreciation of age diversity was found to moderate the relationship between age diversity and several indicators of team functioning. Therefore, it is important to identify in future studies the various antecedents of this critical attitude, e.g. inter-individual differences, work design in teams and leadership behavior. Second, whereas our findings suggest that cognitive conflicts result in deteriorated team effectiveness, there is room to further investigate this relationship and the contingencies that determine it. For example, it might be that the elaboration on task-relevant information among team members would be more likely to foster team performance when the emotional significance members assign to interacting with other team members and to their membership in the team is high. This assumption was recently supported in a meta-analysis (Dewitt et al. 2012). Therefore, we propose that any effort directed at improving teamwork through discussion, elaboration, and interaction among members should be accompanied by efforts to enhance the bond among members.

Outlook

As shown in this chapter, age diversity is an important factor for predicting group effectiveness, especially team innovation and burnout. This impact is characterized by a heightened age salience as well as the activation of age stereotypes and conflicts (mediation effects). As social categorization theory mainly refers to negative and incorrect age stereotypes, it remains to be seen how positive stereotypes regarding older and younger employees influence team functioning. For example, older group members are expected to have greater experience and to

have better social skills (Hummert 1999). In contrast, younger group members are expected to have up to date technological knowledge. To the best of our knowledge, we do not know of any study that has analysed potential benefits of the activation of positive stereotypes. Future studies, therefore, should seek to differentiate between the activation of negative and positive age stereotypes.

Our project has revealed several moderating factors of the relationship between age diversity and team effectiveness, especially team climate, appreciation of age diversity, task complexity, age discrimination and age-differentiated leadership. These moderating factors constitute the starting points to successfully manage age-diverse teams (see recommendations in section Lessons Learned). Thus, demographic change requires managers to change their mind-sets and to learn new leadership skills. Consistent with our findings, other projects in the SPP 1184 found that older people have to be motivated differently than younger people (see chapter Age Differences in Motivation and Stress at Work, Hertel et al.) and that leaders must carefully consider how to react to age-related performance changes (see the editorial, Schlick et al.), promoting the continuous use of age-differentiated ergonomic design in work systems and available trainings (see chapters Successful Aging Strategies in Nursing: The Example of Selective Optimization with Compensation, Müller et al.; Integrating Training, Instruction and Design into Universal User Interfaces, Sengpiel et al.; Ergonomic Design of Human-Computer Interfaces for Aging Users, Schlick et al.). In this chapter, we have outlined in some detail a new management training, designed specifically for managing mixed-age teams. The usefulness of training for supervisors has been tested empirically. Results reveal several positive effects of the training four months after. However, to support this learning process, supervisors also need feedback regarding the quality of their age-differentiated leadership behavior. With this goal in mind, we have recently constructed a new questionnaire with 16 items measuring age-differentiated leadership with regards to (a) general principles for leading age-mixed teams, (b) specific leadership behaviors directed to older employees and (c) specific leadership behaviors directed to younger employees (see FAF 16, Wegge et al. 2012a). The first empirical findings regarding the validity from two samples (192 nurses and 106 production workers) where this new instrument was used are also promising. We found, for example, that young and old employees who perceive their supervisors to lead in an age-differentiated manner are much more satisfied with their work, have less burnout, emotional conflicts, turnover intentions and higher self-efficacy. We therefore suggest that future training studies should include also measures of age-differentiated leadership quality of supervisors in order to support the long-term success of such interventions.

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