Assessing developmental space in teams

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Abstract

Purpose – The aim of this paper is to develop an instrument to assess the developmental space that teams create; examine whether creating more developmental space leads to greater satisfaction with team results; and decide which of three models best predicts perceived results.

Design/methodology/approach – The paper presents a quantitative study of individuals ($N = 257$). An instrument was designed to assess developmental space and was validated with a factor analysis. Multiple regression analyses were used to examine whether creating developmental space led to greater satisfaction with team results.

Findings – This study confirms the four-factor structure of developmental space suggested by earlier research. Creating more developmental space is positively related to perceived team results.

Practical implications – This research highlights the importance of creating developmental space and provides teams with an instrument to assess their developmental space as a starting point for improvement.

Originality/value – The interactions teams use are crucial in explaining the effects of teamwork, but seem underexposed in team research. Creating developmental space is a relatively new concept, hitherto only researched qualitatively. This empirical study extends and endorses previous research on developmental space by providing a quantitative assessment.

Keywords Team performance, Innovation, Complex Tasks, Developmental Space, Team Interactions, Team Results, Team Sensemaking

Paper type Research paper

1. Introduction
In organisations today, tasks often become too complex and difficult for one individual to handle. Teams can outperform individuals in solving these complex tasks (Cummings and Worley, 2009; Goleman *et al.*, 2002; Gratton, 2007; Pacanowsky, 1995), as they can be more creative and better at finding solutions (Chrislip, 2002; Snow, 1999). Moreover, teams have information-processing capabilities that exceed the individual capabilities of team members (Curşeu *et al.*, 2013). In this research, we focus on teams working on complex tasks. We focus on the team task for two reasons: because the task is a key factor in team processes and team performance (Antoni and Hertel, 2009) and because teams function quite differently depending on their tasks (Mathieu *et al.*, 2008). By a "complex task", we mean a task that requires creating new knowledge or new combinations of existing knowledge, taking into account the social process (Clegg *et al.*, 2005; Corso *et al.*, 2001; Kessels, 2004).

For several reasons, teams can be superior to individuals, but struggle to outperform their best member (McGrath, 1984; Rietzschel *et al.*, 2006). First, team members "choose consciously or subconsciously to ignore ideas, advocate for their own ideas, show enthusiasm for others' ideas and provide interpersonal rewards for good ideas" (Harvey and Kou, 2013, p. 347). In this "political game", teams often do not recognise their most creative ideas (Rietzschel *et al.*, 2006, 2010). Second, teams often initially respond negatively to novel ideas because they are afraid of failure or social rejection and are uncertain about the timing of the completion of their ideas (Mueller *et al.*, 2012). Third, team members speak different "languages" (Vangen and Huxham, 2003) and have different conceptual frameworks and belief systems, complicating interaction and information-sharing. Fourth, team members differ in their cognitive abilities and motivation to participate in the team process (Curşeu and Schruijer, 2012). Finally, team members appear less willing to share information with fellow team members if they perceive them to be different from themselves (Mesmer-Magnus and DeChurch, 2009). A cooperative team climate makes it easier to share information and easier to dare to take risks (Chrislip, 2002; Mesmer-Magnus and DeChurch, 2009).

By creating a developmental space, teams create such a cooperative climate (Coenders, 2008; Derksen *et al.*, 2011). Developmental space is the social space arising from interactions within a team and interactions with the environment. Teams create this space by undertaking four activities: creating future, reflecting, organising and dialoguing (Derksen *et al.*, 2011). The practical applicability of developmental space, being an action model focussing on the interaction process within teams, is appealing. The interactions teams use to complete their work are crucial in explaining the effects of teamwork (LePine *et al.*, 2000, 2008), but these seem underexposed in research on teams. With this research, we contribute to the research on team interactions and expand the earlier theoretical conceptualisation of the developmental space (Coenders, 2008; Derksen *et al.*, 2011) by developing an instrument to assess this developmental space.

2. Developmental space
Developmental space is a social and mental space arising from interaction between team members (Coenders, 2008; Derksen *et al.*, 2011) and in interaction with the environment (Derksen *et al.*, 2011). It is a dynamic space bound to a certain situation and moment and concerned with movement, interactivity and continuous creation (Derksen *et al.*, 2011).

According to Derksen *et al.* (2011), teams create this space by undertaking four activities (Figure 1):

(1)   *Creating future*. The team has a shared point on the horizon. This can be an inspiring opinion, posing an urgent question or a desired end result. They want to create value for the community, the organisation and themselves.

(2)   *Reflecting*. The team evaluates their process and results. They connect theory and practice and search for different, sometimes conflicting, perspectives.

(3)   *Organising*. The team agrees about who is doing what, when, how and in how much time (budget). This activity is about coordination, making agreements and feeling responsible.

(4)   *Dialoguing*. The team communicates by asking questions and being curious about exactly what is meant. It searches for reasons and meaning.

In the optimal developmental space, team members feel free to speak up. They trust each other and dare to put forward different viewpoints. They are able to openly discuss these different, sometimes conflicting, ideas. At the same time, they are focussed on achieving
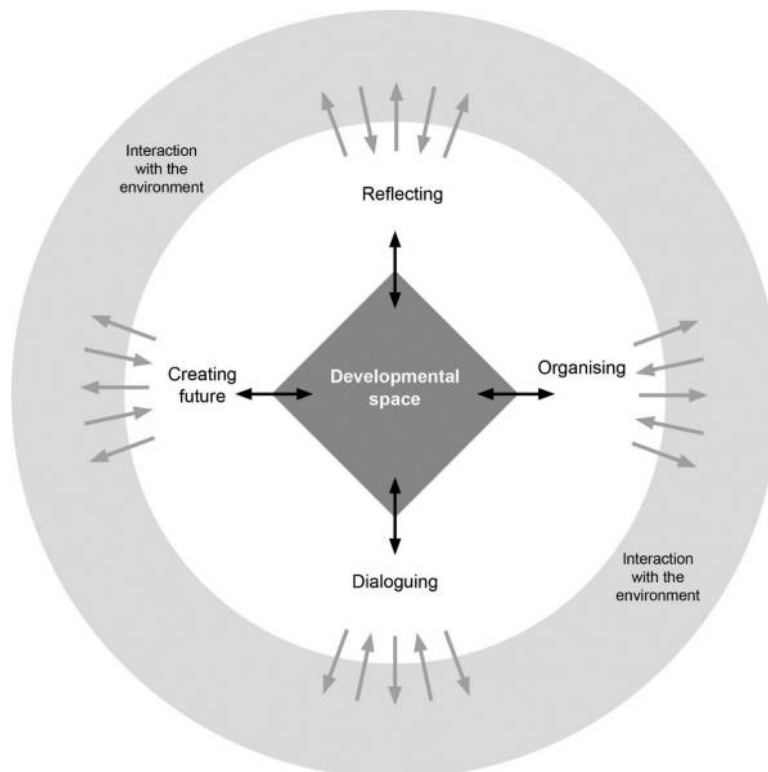
Figure 1.
Model of developmental
space

Source: Derksen *et al.*, 2011

their desired outcome within their budget. Teams creating more developmental space will likely perceive better results (Coenders, 2008; Derksen *et al.*, 2011).

As developmental space is a relatively new concept, we sought for support in research on other team concepts and also tried to position it by comparing it to other, somewhat similar, team concepts (Table I). Hereafter, we describe the support we found in other research per activity of developmental space and after that for developmental space as a whole. First, as motivation for teams, Gratton (2007) states that having an inspiring opinion helps, and Verdonschot (2009) mentions posing urgent and intriguing questions, whereas Vandendriessche and Clement (2006) mention the desired end result. Team members want to create value for the organisation and themselves (Gratton, 2007; Wenger *et al.*, 2002); these findings are in line with creating future. For reflecting, we found the following basis: reflecting means periodically pausing to examine the project and its progress (Leijen, 2008; Schön, 1983). To do so, team members need to jointly make implicit knowledge and experience explicit (van Woerkom, 2004) and by doing

Concept/theory	Description	The overlap with developmental space	How this differs from developmental space
Team spirit	"Team spirit is viewed as a property expressed by the team itself, as a unit, as something that is immanent to the team, resulting from its dynamics and expressed in this overarching commitment" (Silva *et al.*, 2013, p. 288)	Teams have to deal with paradoxes. Team spirit is inter-subjective and shared. Synthesis of individual and collective needs, preventing the team from dominating individuals	Giving insight that teams have to deal with paradoxes and stop themselves from dominating individuals, but no practical implications are given on how to do it
Team roles	Teams need nine roles to be effective (co-ordinator, implementer, completer/finisher, monitor/evaluator, plant, resource investigator, shaper, team worker) (Belbin, 2010)	Teams need different roles, resembling different activities, to be effective	The focus is on individual contributions instead of on the interactions within the team
Team effectiveness	To what output does a certain kind of input lead? Based on Input-Process-Output (I-P-O) framework (Hackman and Morris, 1975; Kozlowski and Bell, 2003)	The team process influences the effectiveness	Focus on input, throughput and output instead of on the team process (Antoni and Hertel, 2009)
Team learning	'a relatively permanent change in the team's collective level of knowledge and skill produced by the shared experience of the team members' (Ellis *et al.*, 2003, p. 822)	Sharing information and interaction are crucial. The processes are: framing, reframing, experimenting, crossing boundaries, integrating perspectives (Kasl *et al.*, 1997)	The focus is on learning instead of on the outcomes and the process
Team interaction model	There are four interaction team processes: exchanging information, learning, motivating and negotiating (Offenbeek and Koopman, 1996)	Four interactions. The interactions positively relate to the effectiveness (Drach-Zahavy and Somech, 2001)	The concept of team interaction is more abstract and relies on the preconditions necessary for effective team operation, rather than on direct actions

Table I.
An overview of how developmental space relates to other team concepts

this teams reduce misconceptions and prejudice (Marsick and Watkins, 1990). For the activity of organising, we found support with Vroemen (2009). According to him, organising is agreeing upon who is doing what, when and in which way. He mentions organising as an important team activity for success. The idea of dialoguing is underpinned by Kessels *et al.* (2002) with three characteristics of dialoguing:

(1) searching for reasons, views, beliefs and standards;

(2) postponing solutions and decisions; and

(3) appreciating differences.

Chrislip (2002) adds that dialoguing is a space-creating way of communicating and is needed to make diversity productive.

For developmental space as a whole, we found the following support: teams perform better if team members actively exchange and discuss information and perspectives (Mesmer-Magnus and DeChurch, 2009; van Knippenberg *et al.*, 2004; Nederveen Pieterse *et al.*, 2013). By doing this, they stimulate one another's divergent thinking and they combine individual ideas into collective novel outputs (Harvey and Kou, 2013). To realise this, every team member needs to have an equal voice (Vangen and Huxham, 2003) and to feel free to take risks and explore non-routine alternatives (Edmondson, 1999). A climate of trust and mutual respect is needed (Edmondson, 1999; Gong *et al.*, 2013; Gratton, 2007; Kahane, 2010). However, creating a climate of trust is delicate; when the level of trust is too high, team members are not critical enough any more and tend to reject deviant opinions and resist change to maintain harmony within the team (Tsai *et al.*, 2011). There is a risk of "groupthink" (Janis, 1972). Creating developmental space leads to a climate of trust and provides the space and possibility for discussing conflicting viewpoints.

Creating developmental space may be conflicting in and of itself because teams need to focus on both performance and on sensemaking, which are potentially conflicting viewpoints. These orientations seem to be diametrically opposed (Coenders, 2008; Derksen *et al.*, 2011). "The performance orientation, with creating future and organising, limits the space by focussing, while the sensemaking orientation, with reflecting and dialoguing, stretches the space by opening-up" (Derksen *et al.*, 2011, p. 262). On the one hand, it is about narrowing down, finding answers quickly, whereas on the other hand, it is about slowing down, broadening and asking more questions. Although these orientations seem to be opposites, it seems that teams need them both (Coenders, 2008; Derksen *et al.*, 2011). We think that teams are confronted with a developmental space paradox. This is probably just one of the paradoxes teams are confronted with because group life is full of paradoxes as Smith and Berg (1997) state.

A paradox consists of two contradictory interrelated elements that seem inconsistent and impossible to realise together (Lewis, 2000; Smith and Lewis, 2011). With a paradox, it is not about good or bad and not either/or. It is about having both. Thus, a paradox has two characteristics: it consists of two contradictory elements; and both elements are necessary to be successful. We find this difficult (Kahane, 2010; Quinn, 2004) and often try to relieve ourselves of the paradox (Jay, 2013; Smith and Berg, 1997) by resolving the tension (Lewis, 2000). This is a pitfall for three reasons:

(1) it is a waste of time, as the tension always comes back;

(2) the tension keeps teams alive (Cameron, 1986; Hoebeke, 2004); and

(3)   it is a trigger for change, creativity and new routes (Lewis, 2000).

Teams are often unaware of paradoxes or avoid the paradox and then get stuck in it (Jay, 2013; Lewis, 2000; Smith and Berg, 1997).

In sum, past research studied the concept of developmental space only qualitatively. With this study, we expand this research in three ways. First we develop an instrument to assess developmental space quantitatively. Second, we examine the relationship between developmental space and satisfaction with the team result. Finally, we assess which of the three models – the four activities, the two orientations or the developmental space as a whole – best predicts the perceived results. Our research questions are therefore:

RQ1. Is there a quantifiable justification that developmental space consists of four activities?

RQ2. Is the perceived result better if teams create more developmental space?

RQ3. Which one of three possibilities best predicts the perceived result: (1) the four activities; (2) the two orientations; or (3) the developmental space as a whole?

3. Methodology
To answer our research questions, we developed an instrument to assess developmental space and tested the relationship between creating developmental space and the satisfaction of team members with the team result.

3.1 Method
3.1.1 Sample and procedure. As this was the first quantitative study on developmental space, we developed an instrument for this concept. We focussed on finding enough individuals to complete our questionnaire and therefore chose the snowball sampling technique (Goodman, 1961). This meant we sent an online questionnaire to people within our network with the request to redistribute the questionnaire within their network. This led to a random sample of 265 individuals. We decided to remove questionnaires from individuals who filled it out for teams with more than 20 team members. This resulted in a sample of 257 individuals ($N = 257$). The participants filled in the online questionnaire and were instructed to answer the questions for a work situation involving a team (this could be a regular team, a project team, an occasional team, etc.), wherein they worked together with the team on a complex question, an improvement or a renovation. The specifications of the sample are shown in Table II. As participants were asked to fill in the questionnaire with a certain team in mind, we also asked some general questions about the team, including size, whether or not there was a leader and the team assignment (see Table III).

Sample characteristics			Mean	SD
Gender	53% female	47% male		
Age	22-70 years		46.89	9.56
Education	98% high (bachelor and MSc)	2% lower		
Role	59% leader	41% team member		

Table II.
The characteristics of the sample

3.1.2 Scale development procedure and validation. As this was the first quantitative study on developmental space, we developed an instrument to assess it. We developed the scale in an iterative way (Figure 2). For testing the prototype scales, we used small random populations ($N > 60$). During the test, participants got the same instruction before filling in the questionnaire as with the final instrument (see § 3.1.1). The first time, we reviewed the outcomes with three experienced scientific scale developers. In the first round, we formulated five items per activity. For the second round, we extended the scale to ten items per activity. After the second testing round, we reviewed the outcomes with five team research experts. We chose these experts because they were able to assess the items critically, based on their research experience with teams. After the last test round, we chose three experts and five non-experts from our own network who reviewed the items to make sure all items were intelligible and clear. This led to some last slight adjustments. After these ten steps, our sample of 257 new respondents, who did not take part in the test rounds, filled out the questionnaire.

The final questionnaire contained 53 items on a 1-5-point Likert scale. These were 40 items about the four activities of the developmental space, ten per activity (see Table IV

Team characteristics

Team size	2-20 team members		7.19 Mean	3.69 SD
Leadership	89% team leader	11% shared leadership		
Team task	40% complex task	24% renovation	36% innovation	

Table III.
The characteristics of the teams
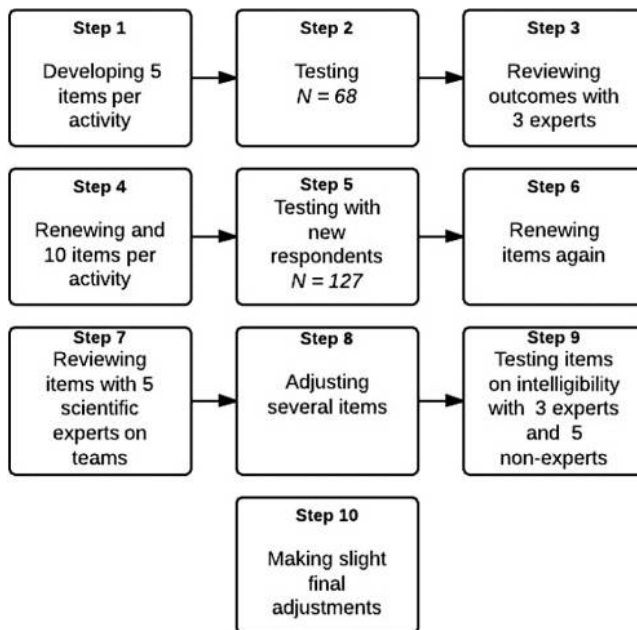
Figure 2.
The scale development procedure

Factor	Items	Dialoguing	Organising	Reflecting	Creating future
Dialoguing	We listened to every team member	**0.70**	0.03	−0.08	−0.04
Dialoguing	I felt appreciated for my input	**0.72**	−0.03	−0.04	−0.23
Dialoguing	We appreciated differences	**0.68**	−0.02	0.06	−0.22
Dialoguing	I felt heard	**0.72**	0.17	0.10	−0.08
Dialoguing	I felt invited to give input	**0.72**	0.10	0.21	0.11
Reflecting	We left paved paths	0.20	−0.09	**0.68**	−0.07
Reflecting	We invented alternatives	0.15	−0.04	**0.61**	−0.09
Reflecting	We evaluated our collaboration	−0.17	0.11	**0.71**	−0.08
Reflecting	Conflicts were helpful	−0.09	0.08	**0.72**	−0.02
Reflecting	We discussed in order to reach solutions	0.33	0.04	**0.40**	−0.07
Organising	Our meeting was structured	0.03	**0.72**	−0.06	−0.01
Organising	We guarded our resources (money, etc.)	−0.02	**0.81**	−0.01	−0.08
Organising	We guarded our time	0.05	**0.88**	0.06	0.17
Organising	We kept ourselves to our planning	−0.09	**0.68**	0.01	−0.17
Organising	I knew exactly what the team expected from me	0.23	**0.49**	0.03	−0.06
Create future	We had a goal in mind	0.07	0.12	0.05	−**0.58**
Create future	We were focused on the result	−0.18	0.19	0.06	−**0.74**
Create future	All members felt responsible for the result	0.11	−0.07	−0.02	−**0.82**
Create future	All members stood behind the result	0.22	0.07	−0.04	−**0.62**
Create future	All members worked with heart and soul on the job	0.10	−0.11	0.11	−**0.75**

Table IV.
Factor analysis of the construct of developmental space Pattern matrix

Notes: Extraction method: principal component analysis; rotation method: Oblimin with Kaiser normalisation; a rotation converged in eight iterations; bold figures are the factor loadings ≥0.4

for the final instrument following the factor analysis), and 13 control variables such as age, gender, team role, etc. The items were randomly mixed up in the questionnaire.

3.1.3 Construct validation and measures. To validate the assumed four-factor structure of developmental space, a principal component factor analysis was conducted. As the different activities of developmental space are assumed to be correlated, the oblique direct oblimin rotation technique is used (Gorsuch, 1983). Four criteria were used to assess the reliability and internal consistency of the scales (Hartog *et al.*, 1997; Schippers *et al.*, 2007). First, Cronbach's alphas needed to be above 0.70 (Nunnally, 1967); second, the factor loadings needed to be above 0.40 (Lindeman *et al.*, 1980); third, the difference between factor loadings needed to be above 0.20; and fourth, the item-rest correlations needed to be above 0.20 (Kline, 1986). Only five items for each activity met all criteria (see Table IV for the final instrument items). The internal consistency was good with Cronbach's alphas for: dialoguing $\alpha = 0.85$; creating future $\alpha = 0.83$; organising $\alpha = 0.80$; reflecting $\alpha = 0.70$; for all 20 items, $\alpha = 0.89$; and for the two orientations, sensemaking $\alpha = 0.84$ and performance $\alpha = 0.85$. These validated scales

were used to answer the research questions. The measure for the "perceived result" consisted of the outcome on one item ("We achieved a good result").

To answer our research questions, we created six variables – developmental space as a whole, consisting of the mean score of the four activities, and for the two orientations we used the mean scores of creating future and organising (performance orientation), and the mean of dialoguing and reflecting (sensemaking orientation). Additionally, we calculated means for each of the four separate activities.

4. Results

We would like to specify that our quantitative analyses are exploratory in nature, we did not formulate specific hypotheses. We aim to provide initial empirical evidence on the concept of developmental space in teams.

Table V shows the means, standard deviations and correlations for the key variables used. All variables used correlate significantly ($p < 0.01$) with each other. From the four activities, creating future and dialoguing correlate most ($r = 0.63$) with each other and reflecting and organising least ($r = 0.29$). Creating future (0.63) and dialoguing (0.62) correlated most closely with the perceived result. Both orientations correlate highly with the perceived result (≥ 0.62), but developmental space as a whole correlates most with the perceived result (0.70). All correlations are high, partly because both orientations include two of the four activities. To be able to answer *RQ3*, we decided to include all these variables despite the possible distortion of correlations.

4.1 RQ1. *Does the developmental space consist of four activities?*
To test *RQ1*, we conducted a factor analysis (see § 3.1.3). The factor analysis validated the four-factor structure and thus supported significantly that developmental space consists of four activities (Table IV). With the two orientations in mind, we also tested a two-factor solution, but were not able to find a solution meeting all the aforementioned criteria.

4.2 RQ2. *Is the perceived result better if teams create more developmental space?*
To answer *RQ2*, whether the result is better if teams create more developmental space, a regression analysis was conducted with the perceived result as the dependent variable and the mean of the four activities, in other words, the size of developmental space, as the independent variable. This revealed a positive and significant association ($\beta = 0.70$, $p <$

Variable	M	SD	1	2	3	4	5	6	7	8
Perceived result	4.01	0.98								
Dialoguing	4.14	0.72	0.62**							
Reflecting	3.51	0.63	0.46**	0.51**						
Organising	3.55	0.75	0.43**	0.35**	0.29**					
Creating future	4.00	0.77	0.63**	0.63**	0.45**	0.48**				
Developmental space	3.80	0.55	0.70**	0.81**	0.71**	0.71**	0.85**			
Sensemaking orientation	3.82	0.59	0.63**	0.89**	0.85**	0.37**	0.63**	0.88**		
Performance orientation	3.77	0.65	0.62**	0.57**	0.43**	0.86**	0.87**	0.90**	0.58**	

Notes: $N = 257$; **$p < 0.01$ (two-tailed)

Table V.
Summary of
intercorrelations, means
and SDs for the key
variables

0.001, $R^2 = 0.49$) Thus, team members in the teams that created more developmental space were more satisfied with their results.

4.3 RQ3. What predicts the perceived result best?
To answer *RQ3*, whether the four activities, the two orientations or the developmental space as a whole best predict the result, we conducted four multiple regession analyses.

First, the four activities as independent variables explained 50 per cent of the variance in the perceived result ($R^2 = 0.50$, $p < 0.001$). All four activities made a statistically significant contribution to the prediction of the perceived result: dialoguing ($\beta = 0.31$, $p < 0.001$); creating future ($\beta = 0.32$, $p < 0.001$); reflecting ($\beta = 0.13$, $p < 0.001$); and organising ($\beta = 0.13$, $p < 0.001$).

Second, the performance orientation and sensemaking orientation as independent variables explained 49 per cent ($p < 0.001$) of the variance. Both orientations contributed significantly to the perceived result (performance orientation $\beta = 0.38$, $p < 0.001$; sensemaking orientation $\beta = 0.41$, $p < 0.001$).

Third, to find out if the orientations interact with each other, another multiple regression analysis was conducted with the main effects of the two orientations and the product of the two orientations added, after centering the main variables (Aiken and West, 1991). All three independent variables contributed significantly to the perceived result: the performance orientation ($\beta = 0.38$, $p < 0.001$), the sensemaking orientation ($\beta = 0.37$, $p < 0.001$) and the product of the two orientations ($\beta = -0.14$, $p < 0.005$). The interaction plot (Figure 3) confirmed both orientations contributed positively and independently to the perceived result. The interaction consists of a relative improvement in the team result associated with a higher performance orientation that is higher when the sensemaking orientation is low than when it is high. However, the perceived team result was still best when both orientations were perceived as high.

Fourth, as already mentioned, a regression analysis with the developmental space as a whole, in other words the size of the developmental space, as independent variable revealed a positive association ($\beta = 0.69$, $p < 0.001$, $R^2 = 0.50$).

Thus all three models – a combination of the four activities, the two orientations and the developmental space as a whole – explained (almost) 50 per cent of the variance in
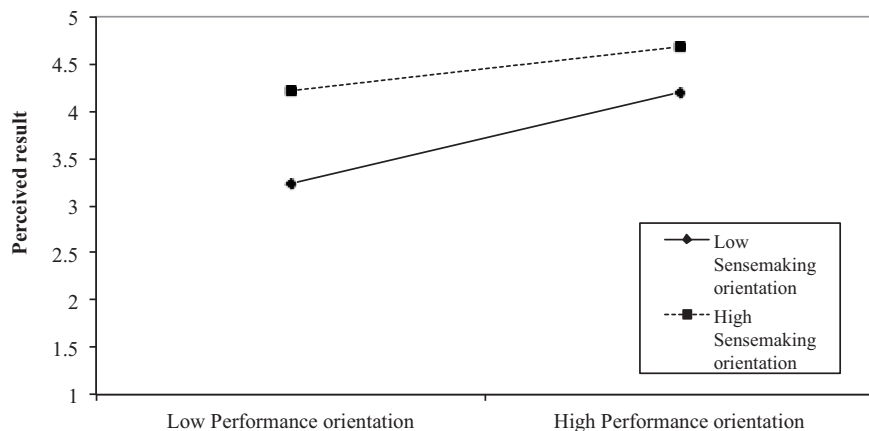

Figure 3.
Interaction between the two orientations: performance orientation and sensemaking orientation

the perceived result. The correlations (Table V) indicate that the developmental space as a whole correlated most closely with the perceived result ($r = 0.70$, $p < 0.01$).

5. Discussion
5.1 Summary of main findings
This study provides a first quantitative exploration of the developmental space concept. We developed an instrument to empirically assess developmental space. The factor analysis confirmed the existence of the assumed four-factor structure of developmental space. Additionally, we found support for the expectation that there is a positive relation between the extent to which teams practise these four activities and their perceived outcomes. Earlier qualitative research on developmental space by Coenders (2008) and Derksen *et al.* (2011) was endorsed and extended with this study. Whether the four activities, the two orientations or developmental space as a whole contribute most to the perceived result cannot be unequivocally answered. Our analyses indicate that almost 50 per cent of the variance in the perceived result was explained by all three models: the four activities, developmental space as a whole and the two orientations. Developmental space, as a whole, correlated most closely with the perceived result. We therefore conclude that developmental space as a whole, in other words the size of the developmental space, is the best concept for predicting team results. However, more research is needed to gain better insight into this.

5.2 Future research suggestions
5.2.1 The research advantages of an instrument. The instrument we developed and validated enlarges future research possibilities to further assess developmental space quantitatively. Possible questions for future research are:

- how does developmental space develop over time within teams;
- is developmental space a relatively stable team feature or is it very dynamic;
- how does developmental space differ according to the team's purpose;
- to what extent do changes in the context and environmental changes influence the
- developmental space; and
- how does team composition influence developmental space?

5.2.2 The role of leadership. Leadership may play a role in creating developmental space and handling paradoxes. Leaders can make others speechless (Tost *et al.*, 2013), meaning that leaders use their power to prevent team members from having an equal voice. Most teams in this research (88 per cent) had a leader. Derksen *et al.* (2011) hypothesise that shared leadership might stimulate creating developmental space but did not further examine that idea. It would be interesting to find out what the influence is of (shared) leadership on developmental space.

5.2.3 The developmental space paradox. Developmental space might imply a paradox consisting of the sensemaking and performance orientation. As mentioned already, a paradox consists of two contradictory elements, which are nevertheless both necessary for success (Lewis, 2000; Smith and Lewis, 2011). Based on the data in this study, we were not able to confirm that teams indeed experience this developmental space paradox. This might be partly due to the quantitative nature of our data. Researching an intangible phenomenon such as paradoxes is difficult, as Lewis (2000) delineated. New

research approaches will be needed to research paradoxes in more depth because our main research approaches oversimplify and over-rationalise complex phenomena (Lewis, 2000). Based on the data in this study, it is questionable whether it is possible to find quantitative support for both characteristics of a paradox at the same time. Needing both means there should be no interaction effect; both orientations need to be high in relation to the perceived result. We found confirmation for that (Figure 3), but it was not possible to extract from the data whether teams perceive the two orientations as contradictory and mutually exclusive.

As a first exploration of our idea on the developmental space paradox, we interviewed the team members of two teams. We selected two teams using the success case method (Brinkerhoff, 2002); that is, we selected a team that created almost maximum developmental space (successful team) and a team creating very little developmental space (unsuccessful team). We asked the members, among other questions, what they experienced as difficult moments in their team. From the successful team, all four team members mentioned the tension between the two orientations. From the unsuccessful team, only one member mentioned this. When we asked the successful team what helped them most to be successful, all four team members mentioned dialoguing and discussing the tension. For instance, one team member said:

> There were moments that I wanted to explore something more in detail, but two other team members questioned the value of that. We had tough discussions about this, but always agreed on what was best. We alternated speeding up and focussing with slowing down and broadening.

When we asked the unsuccessful team what might have helped them to be successful, three team members mentioned more discussion of the tension between the two orientations. The informal leader said:

> I experienced a lot of time pressure and wanted to move on, if we had questioned the way we were working more often we would probably have reached a more satisfying result in less time.

If there is indeed a developmental space paradox, then how teams experience and handle this might be crucial in creating developmental space. This first exploration indicates that a combination of quantitative and qualitative research offers promise. Further research is needed to find out whether the developmental space paradox exists, how team members handle this paradox and if and how handling this paradox influences the team result.

5.3 Limitations

A limitation of this research is that we only had one outcome measure: team members' satisfaction with the team result, consisting of only one item. Future research should include more team outcome measures and use more items to assess them properly. Moreover, the question arises whether the perceived result is a proper predictor of the objective outcome of the team. LePine *et al.* (2008) confirm that objective team performance and member satisfaction are indeed positively and significantly associated. Thus, the perceived result might be a good predictor of the actual result achieved. Additionally, the fact that every respondent answered the questions about the developmental space and the question about perceived result might have led to a common method bias. Therefore, for future research, we recommend collecting objective team outcomes as well, or collecting supervisor or client ratings.

The data we used were from individuals in teams and did not include ratings of complete teams. For this first quantitative study, we chose this approach because we wanted a big number of participants to develop the instrument, and we had no plans at this point to run analyses on teams. By using the snowball sampling technique, we were able to collect 257 responses, but the disadvantage is that we did not gain insight into where the responses came from. We gained general information on the teams, but not on their organisation and environment, nor on ratings of other team members. We recommend replicating this study using data from whole teams and gaining more specific information on the organisation, the purpose and assignment of the team and their environment. Data from whole teams could be useful because team members might experience the developmental space differently and may have either a preference for or an aversion to one or more of the four activities.

Antoni and Hertel (2009) delineate a valuable overview of and framework for all the variables influencing the effectiveness of teams. Taking all these variables into account within one research study seems impossible. Thus, every research applies part of the framework. We only focus on the team process, more specifically on the interactions – a mediating variable, according to Antoni and Hertel (2009) – and on handling paradoxes. The question rises as to whether we ever gain real insight into teamwork if we keep studying it in bits and pieces, but do we have any other options?

5.4 Practical implications
The results of this study indicate that team members are more satisfied with their results, if they create more developmental space. The instrument that we developed can give teams insight into their own developmental space. The concept is practical because it focusses on activities. Teams can use the developed instrument to gain insight into their developmental space to be able to retain or improve it. Answering the questions from the instrument does not take much time because it is only five items per four activities. The instrument thereby provides teams with an easy-to-use evaluation tool. As it is easy to use, teams might even choose to use the instrument frequently and by doing so constantly improve their developmental space. As organisations increasingly rely on teams to fulfill complex tasks and teams often struggle to make their diversity productive to achieve the best team result, this instrument might be helpful. If this is indeed the case, it merits further research.

6. Conclusion
This study investigated the developmental space. It is a relatively new concept, assuming that teams work more successfully on a complex task, renovation or innovation if they create more developmental space during their collaboration. Teams create this space in their interaction by undertaking four activities: creating future, organising, reflecting and dialoguing. Hitherto, there has only been qualitative research available on developmental space. With this first quantitative study, an instrument was designed and validated to assess developmental space. Multiple regression analyses supported the earlier qualitative research by Coenders (2008) and Derksen *et al.* (2011). Teams that created more developmental space were indeed more satisfied with their results. The instrument developed aims to contribute to future research on developmental space and provides an evaluation instrument to allow teams to gain insight into their developmental space and improve it if needed.

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Further reading

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