Report for the
European Association for Work and Organizational Psychology
(EAWOP)

Dynamics of Team Cognition and Team Adaptation

October 23 – 25, 2014

Instituto Universitário de Lisboa

ISCTE-IUL, Lisbon, Portugal

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Website: http://eawopsgmcognition2014.iscte-iul.pt/

ISCTE IUL Instituto Universitário de Lisboa eawop European Association of Work and Organizational Psychology INDEG IUL ISCTE Executive Education

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1. Rationale and aim

Given the continuous and large changes in the macro environment - globalization, technology, social trends - teams are increasingly faced with the need to adapt. As a result, so do the scholars studying these teams. Although team adaptation is a dynamic construct, empirical studies have predominantly embraced a static approach in which teams' behavioral processes, cognitive structures, as well as outcome measures are operationalized as stable characteristics and assessed at a single point in time. In particular team cognition (the manner in which knowledge important to team functioning is mentally organized, represented, and distributed in a team, Kozlowski & Ilgen, 2006) has proven to be a topic that is quintessential to understand team functioning in dynamic contexts (Rico, Sánchez-Manzanares, Gil & Gibson, 2008; Kozlowski & Chao, 2012). There is a general recognition in the literature of team cognition as an emergent phenomenon "by which lower level system elements interact and through those dynamics create phenomena that manifest at a higher level of the system" (Kozlowski & Chao, 2012, p. 335). However, still little is known about how team cognition unfolds over time and how this relates to evolving team adaptation.

There are various explanations for this discrepancy between theorizing about constructs as dynamic processes and the often static operationalization in field studies. Part of the explanation can be found in the difficulty of gathering and analyzing longitudinal data on team cognition and adaptation over time. Another explanation may be that the current measurements available are developed to answer static research questions and should be adapted or new measures should be developed for more dynamic and longitudinal designs. The purpose of this Small Group Meeting therefore was to serve as a springboard for a more dynamic approach to understand and assess team adaptation and cognition in dynamic environments.

2. Format

Our goal for the SGM was to have as much interaction and discussion between participants as possible, to provide ample opportunity for sharing and co-creating knowledge, insights and ideas. Therefore we did not schedule any classic forms of presentations, except for the keynote lectures. Instead, we scheduled for active participation in round table sessions, focus groups, and a closing plenary session on every congress day.

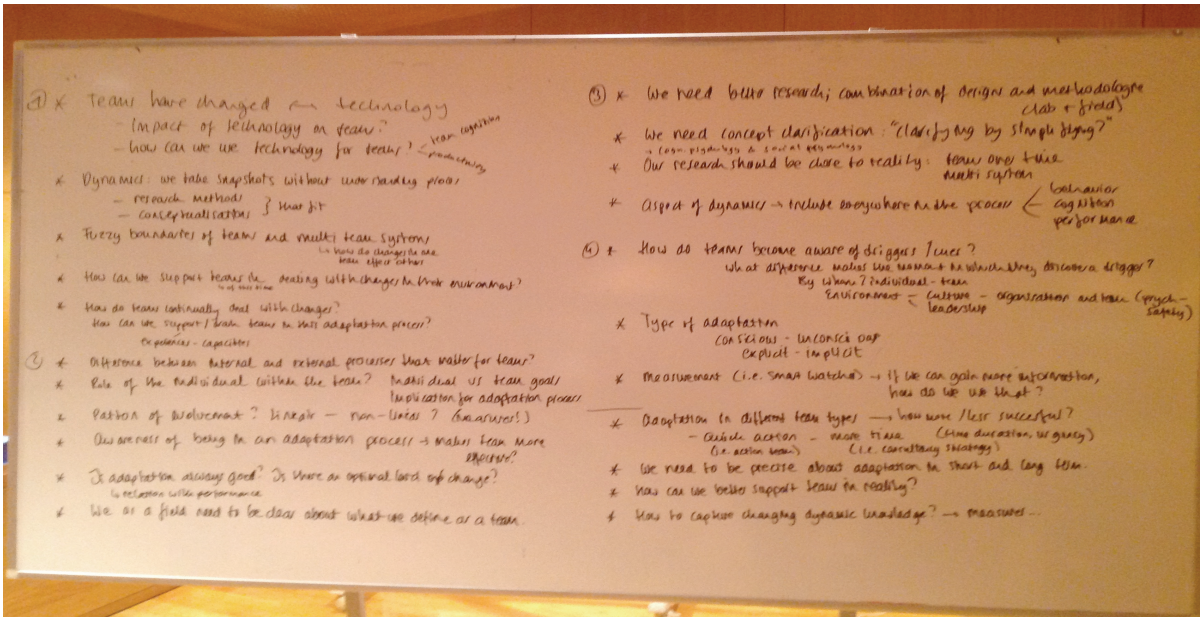
Round Table Sessions:
On the first day of the meeting, we had six round table sessions (two times three parallel sessions with 3-4 presentations each) with a (seemingly) random allocation of contributions. The purpose of the round table sessions was to collectively make use of all expertise available at the table. Presenters were given the opportunity to give a five-minute presentation of their submission (with or without the use of electronic devices). The presentation was directly followed with a group discussion about the question(s) or issue(s) that the presenter posed as the starting point for the discussion. Each presenter had prepared a discussion sheet with information needed for colleagues to grasp the main idea of the study and the key question(s) they wanted to discuss (see Appendix). Hard copies were provided by the organizing committee.

Focus Group Sessions:
On the second day we worked with focus-group sessions to integrate the different knowledge, insights, and ideas within the group. We had four focus-group sessions (two times two parallel sessions). Each session was guided by a member of the organizing committee. He/she gave a short introduction to the topic and posed several questions/issues as a starting point for the discussion. The focus-group sessions had the following topics:

- Assessment of team cognition, led by Sjir Uitdewilligen
- Team cognition in general, led by Michael Burtscher

- Learning and adaptation, led by Selma van der Haar
- Processes and change over time, led by Josette Gevers

Plenary "Major findings and debate sessions":
After each conference day we had a wrap up session in which we collected the major findings and insights, so that the knowledge created would be shared by all participants. On day one we focused on collecting questions that would be valuable to address in the focus groups on day two and/or in future research. Day two we closed with a summary of the main points discussed in each focus group. On the final morning of the SGM we discussed the key issues that, according to the participants, need to be addressed in future research (see also page 8).



3. Program

The program of the SGM was as follows:

Wednesday 22nd October - OPENING

19:00 Arrival of participants
20:00 Opening dinner at INDEG-IUL

Thursday 23rd October - EXPLORING

09:00 Reception
09.30 Interactive introduction
10:30 Keynote by Ramon Rico - "*Cycles of Implicit and Explicit Coordination: Understanding Team Adaptation*"
11:15 Explanation of the program
11:30 Coffee break
12:00 Roundtable sessions 1
13:30 Lunch
14:30 Roundtable sessions 2
16:00 Coffee break

16:30 Major findings and debate session
18:00 Free time
20:00 Dinner in the Lisboa's Downtown area (optional)

Friday 24th October - ELABORATING

9:00 Keynote by Leslie DeChurch - "*Cognitive Underpinnings of Team and Multiteam Success*"
10:00 Explanation of the program
10:30 Coffee break
11:00 Thematic focus groups 1
13:00 Lunch
14:00 Thematic focus groups 2
16:00 Coffee break
16:30 Major findings and debate session
18:00 Free time
19:00 Social event
20:00 Dinner in the Lisboa's Downtown area (optional)

Saturday 25th October - CONCLUDING

9:00 Debate "Team cognition: Past, present, and future"
11:00 Coffee break
11:30 Discussion/Concluding remarks
12:30 Closure session

Keynote speakers:

Ramón Rico, PhD - *Autonomous University of Madrid, Spain*

Rámon Rico is a Professor of Social Psychology at Universidad Autonoma de Madrid. He is interested in studying implicit and explicit team coordination process, team diversity, multi-team systems performance, and team virtuality. His work is published in journals such as the Journal of Applied Psychology, Journal of Management, European Journal of Work and Organizational Psychology or the Journal of Managerial Psychology. He is currently the Editor of European Journal of Work and Organizational Psychology.

Leslie A. DeChurch, PhD - *Georgia Institute of Technology, USA*

Leslie DeChurch is Associate Professor of Organizational Psychology at the Georgia Institute of Technology. Her research interests include leadership and teamwork in organizations. Her research has appeared in top journals including the Journal of Applied Psychology, Journal of Management, Leadership Quarterly, and Small Group Research. She is on the editorial boards of the Journal of Applied Psychology, Small Group Research, Journal of Occupational and Organizational Psychology, and the Journal of Business and Psychology. She is currently working in the areas of leadership networks and multi team systems, and teaching Social Psychology and Social Networks.

4. Participants

Besides the members of the organizing committee and keynote speakers, 24 participants (listed below) attended the SGM. Participants were selected on the quality and relevance of their submitted abstracts, as reviewed by members of the organizing committee. Participants came from Europe, Asia and the USA, and represented 9 different countries.

Amy Sommer - Assistant Professor, HEC Paris, France
Anne Boon - PhD Student, University of Leuven, Belgium
Annika Giersiepen - PhD Student, Georg-August-University Göttingen, Germany
Conny Antoni - Professor, University of Trier, Germany
Balázs Péter Hámornik - Assistant Lecturer, Budapest University, Hungary
Catherine Gabelica, Researcher and Lecturer, Maastricht University, The Netherlands
Chantal Savelsbergh - Assistant Professor, Open University of the Netherlands, The Netherlands
Christian Happ - Post-Doc, University Trier, Germany
Cornelia Kleindienst - Researcher, University of Applied Sciences Northwestern Switzerland, Switzerland
Eleni Georganta - PhD Student, Ludwig Maximilians Universität München, Germany
Elisabeth Raes - PhD Student, University of Leuven, Belgium
Eva Kunst - PhD student, Tilburg University, The Netherlands
Hildert Zoethout - PhD-Candidate, Wageningen University, The Netherlands
Jan Schmutz - Postdoc, ETH Zürich, Switzerland
Kohei Nonose - Assistant Professor, University of Tokyo, Japan
Margarete Boos - Professor, University of Göttingen, Germany
Travis Maynard - Associate Professor, Colorado State University, USA
Margarida Pinheiro - PhD student - University of Coimbra, Portugal
Mark Clark - Associate Professor, American University, Washington DC, USA
Noshir Contractor - Full Professor, Northwestern University, USA
Piet Van den Bossche - Associate Professor, University of Antwerp/Maastricht University
Renate Wesselink - Assistant Professor, Wageningen University, The Netherlands
Stefan Schulz-Hardt - Full Professor, Georg-August-University Göttingen, Germany
Thomas Ellwart - Professor, University of Trier, Germany

5. Lessons learned

Focus group on assessment of team cognition (Sjir Uitdewilligen)
The goals of this session were twofold. The first goal was to identify which criteria team cognition researchers considered most crucial for selecting a team cognition measure. The second goal was to brainstorm about possible new measures that would optimally perform on the generated criteria. In this session we followed a two-step procedure. As a first step the participating scholars first individually and then in small groups identified nine criteria for assessing measures of shared cognition. Then we evaluated a traditional measure (paired comparison ratings) and two novel measures (dynamic content analyses, and implicit cognition measures) according to these criteria. This resulted in the following rubric.

	Usability	Valid	Distinguishes actual from perceived	True team level	Statistically friendly	Confidential (anonymous)	Covers relevant content	Intrusiveness	Applicable in action
Matrix	-	+/-	+	+	+	+	+/-	-	-
Content analysis	+	?	+?	+	+/-	+/-	+/-	+	+
Implicit measure (reaction time)	-	?	+	+/-	+	+	+/-	+/-	-

Focus group on team cognition in general (Michael Burtscher)
In this focus group, we discussed open questions in the field of team cognition. Our goal was to identify avenues for future research. Building on the keynote by Leslie DeChurch, who named three main challenges (team cognition in multi-team-systems, team cognition as a network, dynamics of team cognition), we tried to address smaller gaps in the extant literature. Consequently, the title was "Grand challenges and smaller questions". We covered several topics. First, we briefly discussed the relationship between diversity and team cognition. Then, we contrasted perceptual and structural team cognition. It became apparent that participants had different views regarding the concept of perceptual cognition. For example, do aggregation indices such as r_{wg} capture perceptual cognition or do we need direct measures of perceived sharedness? Another question concerned the relationship between team cognition and implicit coordination. Do shared mental models elicit implicit coordination behavior (i.e., cause)? Or do these behaviors occur more or less spontaneously in (expert) teams and shared mental models represent a boundary condition (i.e., moderator) that ensures the effectiveness of implicit coordination? We also discussed the role of predicting the actions of other team members as a potential underlying mechanism (i.e., mediator) of the effect of team cognition on team performance. Finally, participants discussed in small groups how they would set up a study to investigate one of these questions.

Focus group on learning and adaptation (Selma van der Haar)
The goal of this focus group was to explore the conceptual relation between team adaptation and team learning in terms of antecedents, processes, and outcomes. Nine contributions to the SGM had team learning as a central concept, three contributions had team adaptation as a central concept, and three contributions included both. Key terms used in these contributions were team learning processes, team learning behaviors, team learning outcomes, team adaptability, team adaptation, structured team adaptation (STROTA), adaptive team behavior, and team adaptation outcomes.

First, three statements were projected, based on the three SGM contributions that combined team learning and team adaptation: 1) "Team learning is the final stage in the adaptation process" (Georganta); 2) "Team learning is an expected driver for team adaptation" (Savelsbergh); 3) "Learning is made possible by initial outcomes and then learning, in turn, influences subsequent team adaptation" (Maynard)

Then, two theoretical perspectives on the relation between team learning and team adaptation were shortly shared. First, the model of Rosen et al. (2011) that states that team adaptation is a dynamic cycle of adaptive team performance with four phases: 1) situation assessment, 2) plan formulation, 3) plan execution, and 4) team learning. Second, the definition of team learning developed by London & Sessa (2008): adaptive learning (making an adjustment in the way team members work together in a

response to a pressure or opportunity), generative learning (seeking new knowledge and information, learning new skills, and then finding new ways to apply it; mastery learning), and transformative learning (making significant changes in the structure, goals and/or operations of the team).

Before we started the dialogue, each participant individually wrote down his or her definition of team learning and team adaptation to make sure that all different or comparable ideas were collected up front. After this, we divided in two groups. In these groups the definitions were shared and a dialogue about the relation between team learning and team adaptation emerged. In one of the groups this discussion led to an overview of relevant concepts. The second group reflected on the model of how team learning and team adaptation emerge over time during both action and transition phases in a team's life presented by Rámon Rico during his key note. By doing so the group developed a shared understanding of the meaning and inter relation of team learning and team adaptation and a more fine-grained model of how these concepts relate over time.

Focus group on processes and change over time (Josette Gevers)

In this thematic focus group session we discussed the nature of team adaptation processes and how they evolve over time. Additionally, we addressed issues related to the measurement of team adaptation processes over time. The facilitator of the session presented the participants with two sets of questions, which were discussed in 3 small groups of about 6 members.

Questions regarding how adaptation processes evolve over time included:

- What are important phases and transition points? What triggers these transitions? Are certain patterns of change more likely to be effective than others? How is the timing of the triggers affecting the adaptation process?

Questions about the measurement of adaptation processes over time included:

- What time points do we need to appropriately measure team adaptation? How can quantitative and qualitative methods be helpful in measuring team adaptation processes?

The discussions of the three groups developed into very different directions. One of the groups talked about theoretical models of team adaptation (Burke, Stagl, Salas, Pierce, & Kendall, 2006; Rosen, Bedwell, Wildman, Fritzche, Salas, & Burke, 2011) and discussed to what extent effective team adaptation required that all phases identified in these models are visited in the suggested order, and whether this depends on the type of trigger and the experience of the team. Relatedly, it was discussed whether team adaptation always takes place consciously, or whether it may also take place without conscious awareness. Another group discussed whether team adaptation actually required a change in team activity or could also constitute a mere change in cognition. The third group focused on the particularities of measuring team adaptation in one of the participant's field research projects. They discussed the frequency of measurement, considering appropriate measurement intervals, and also reviewed the possibilities of employing event sampling for assessing team adaptation.

Interestingly, the discussions focused to a large extend on the nature of the adaptation process. Apparently, this is still an area that is in development and that we don't really agree upon. Regarding the measurement of team adaptation over time it was clear that one needs to carefully consider the specific situation under study to determine the appropriate mode of measurement.

Research needs identified in the "Major findings and debate sessions":

On the final morning of the SGM we discussed, in small groups, which key issues should be on the agenda for future research. Participants later shared their thoughts and ideas in the final plenary session:

Group 1:

- Teams have changed by technology
  - What is the impact of technology on teams?
  - How can we use technology for teams?
- Dynamics: we take snapshots without understanding the process. We need research method and conceptualizations that fit with the dynamic approach
  - How do teams deal with changes?
  - How can we support teams in dealing with changes in the environment

    - How can we support teams in this adaptation process?
- Fuzzy boundaries of teams and multi-team systems
- How do changes in one team affect others?

Group 2:
- Differences between internal and external processes that matter for teams
- Role of the individual within the team (e.g., individual vs team goals)
- Patterns of evolvement? Is it linear or non-linear?
- Awareness of being in an adaptation process; does that make teams more effective?
- Is adaptation always good? Is there an optimal level of change (in relation to performance)?
- We, as a field, need to be clear about what we define as a team.

Group 3:
- We need better research in terms of design and methodology (e.g., lab and field)
- We need concept clarification - clarifying by simplifying
- Our research should be close to reality (e.g. teams over time; multi systems)
- Aspecs of the dynamics (e.g., include process of behavior, cognition, performance)

Group 4:
- How do teams become aware of triggers/cues?
    - What difference does it make when they discover the trigger?
    - By whom? (individual - team)
    - Environment (culture of the organization and team (psychological safety), leadership
- Type of adaptation (e.g. conscious or unconscious; implicit or explicit)
- Measurement (i.e., use of technology such as smart watch).
- If we can gain more information, how do we use that?
- Adaptation in different types of teams, with more/less time urgency, time duration (e.g., quick action teams vs. less urgent consultancy strategy team)
- We need to be precise about adaptation in short and long term
- How can we better support teams in reality?
- How to capture the changing dynamics in knowledge? (e.g. measures)

6. Future plans

When we explored the future plans for this group, we agreed that we will form a network in the future in which we can share insights and co-create knowledge. We agreed to meet at the EAWOP conferences as well as team focused meetings like the INGRoup conference. During the small group meeting, different initiatives were taken such as starting new cooperations or organizing an exchange visit. The organizational committee will take the lead in writing a position paper about the content of the SGR, with reference to all participants to this SGM.

7. Evaluation

Regarding participants' evaluation of their experience in this small group meeting, the overall satisfaction with the event is high. In sum 21 participants responded to a questionnaire using a Likert type scale ranging between 1 (very bad) and 10 (very good). In Table 1 we show the descriptive statistics for participants' evaluations of the different aspects of the event.

Table 1. *Participants' evaluations of the event*

		Mean	Standard Deviation	Minimum	Maximum
1.	Key note sessions	9.05	0.87	8	10
2.	The roundtables	8.48	1.17	7	10
3.	The focus groups	8.05	1.07	7	10
4.	The major findings and debate sessions	8.00	1.14	6	10
5.	The debate "Team cognition: Past, present and future"	8.29	1.31	5	10
6.	The discussion and concluding remarks	8.10	1.22	5	10
7.	The general organization (e.g. assistance, information provided)	9.86	0.48	8	10
8.	The food (i.e. lunches and coffee-breaks)	9.33	0.86	7	10
9.	The facilities (i.e. rooms and auditoriums)	8.71	0.96	7	10
10.	The social program (i.e. dinners and tours)	9.62	0.67	8	10
11.	Your experience in the EAWOP SGM	9.38	0.74	8	10

Besides the quantitative evaluation of the event, we invited participants to provide extra feedback about other topics that were not covered in the survey. In general, their comments showed that the structure and dynamics of the event were very good and really contributed to the debate and dissemination of ideas. Participants also mentioned that they would have liked more time for the round table sessions, and that the debate and major findings sessions could have benefit from further exploration of ideas. Below we share some of the comments:

1. This is the future of scientific conferences! Well done!!!
2. Thank you for a well-organized, friendly and interesting conference.
3. The closing debate on Friday could have been more in depth. Now, it was more of "this is what we did" (process-wise), instead of a more content-wise "we came up with… and what are your suggestions". Thanks for the dinners and social event. Great tour! I really liked always working in small groups, and with different people.
4. This was a great conference, great people and topics. I wish we could have spent more time talking about everyone's research (only 3 hours were reserved for the papers out of 2.5 days). The discussions were very nice, but lacked a clear purpose. This led to a feeling of unbalanced between the research and the discussion. The key notes were fantastic! The committee and ISCTE hosts were very helpful and kind.
5. The conversations and small group sessions were great. They each provided me wonderful thoughts about where to go next with my research in this area. I met lots of great people in that I hope to collaborate with in the future. Might have been nice to have a chance to share our papers with all the attendees somehow instead of just about 1/3 of attendees.

8. Conclusion

As organizing committee, we are very much satisfied with the results of this Small Group Meeting. Bonds were tied, deep discussions were generated, inspiration was found, and future plans were made.

The Organizing Committee would like to express many thanks to Ramón Rico and Leslie DeChurch for their willingness to join the SGM and give a keynote lecture. Many thanks also to all participants for their valued contributions. Last but not least, our thank you goes out to the host and sponsors of this SGM2014: ISCTE - IUL, INDEG - IUL, and EAWOP.

9. References

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