



INITIAL REPORT

E-PLM 2.0 - Experiment 5.1

Heterogeneity in teams, shared goals & collaboration tricks

This report has been created within the E-PLM 2.0 project, Experiment 5.1.
For questions, please contact:

Ellen Nathues
University of Twente
e.nathues@utwente.nl

Dr. Mireille D. Hubers
University of Twente
m.d.hubers@utwente.nl

Dr. Maaïke D. Endedijk
University of Twente
m.d.endedijk@utwente.nl

E-PLM 2.0 – Experiment 5.1: Initial Report

Heterogeneity in teams, shared goals, & collaboration tricks

The E-PLM 2.0 project provides a diverse and inspiring space for different organizations and professionals to join forces and collaborate. Teams work on a broad range of topics – from servitization questions to VR applications to collaboration and expert portals – but unite in their goals of learning from one another and collectively generating solutions. In Experiment 5.1, we focus on precisely these collaboration processes: How do teams accomplish work? How is knowledge shared, integrated and created? And how can we improve and support these processes?

In finding answers to these questions, we take an interactional and micro-level perspective. In less technical terms, this simply means that we try to understand how teams collaborate in their actual exchanges (think of meetings, for example) and how individual team members experience this collaboration. Accordingly, we join and video-record team meetings, conduct interviews to learn more about members' impressions and from time to time send out a questionnaire.

In this document, we report some first insights of Experiment 5.1 as well as tips and tricks of collaborating and knowledge-sharing. We appreciate all team members' input and contributions and very much want to thank everyone for welcoming us in their meetings, for taking the time to share their experiences with us, and, overall, for their valuable help and support so far. Please do not hesitate to reach out to us if there is something you would like to share:



Ellen Nathues, MSc.
e.nathues@utwente.nl
+31 53489 1504



Dr. Mireille D. Hubers
m.d.hubers@utwente.nl
+31 53489 1115



Dr. Maaïke D. Endedijk
m.d.endedijk@utwente.nl
+31 53489 3608

Inter-organizational, cross-functional teams: Our first insights

The teams formed within the E-PLM 2.0 project match a general trend that keeps growing on the organizational landscape: While teams traditionally used to be made up of similar professionals, they more and more come to be home to professionals from diverse backgrounds. Teams no longer just bring together members resembling one another but increasingly serve as a hub for heterogeneity, including across professions and organizations^{1,2}. Professionals with different educations, experiences, knowledge bases and organizational affiliations are convened to link diversified opinions, abilities and ideas³ — expected to boost creativity, learning and innovation, to improve decisions and to maximize team effectiveness⁴.

The importance of differences between team members

For all these positive effects to occur, it is crucial that team members position their differences center-stage; rather than considering them as insignificant requisites and agreeing on common denominators too quickly. Striving for too much harmony, what often happens in heterogenous teams is that differences are put back-stage, which very much contradicts the original reasoning behind forming such teams. Team members need to make sure that they are aware of, engage with and work across their individual differences instead of navigating around them⁵. In other words, the main challenge that members of heterogenous teams need to overcome is to move towards shared goals and collaborative efforts while upholding and treasuring their differences. Team members need to collaborate without pushing their diversity to the back of their minds, so that their differences can fuel their teamwork⁶. In this report, we take a look at different facets of working across and around differences, including:

- o knowing what team members know,
- o shared problems and goals,
- o knowledge conceptions and
- o dos and don'ts of collaboration and knowledge-sharing.

Knowing what your team member knows

In heterogenous teams, it is important to take the time to find out about each other's differences and unique knowledge bases – which are indeed diverse within the E-PLM 2.0 community, as first investigations show (see word cloud on next page):

¹ Arnaud & Mills, 2010

² Edmondson & Harvey, 2017

³ Majchrzak, More, & Faraj, 2012

⁴ van der Vegt & Bunderson, 2005

⁵ Van Knippenberg & Schippers, 2007

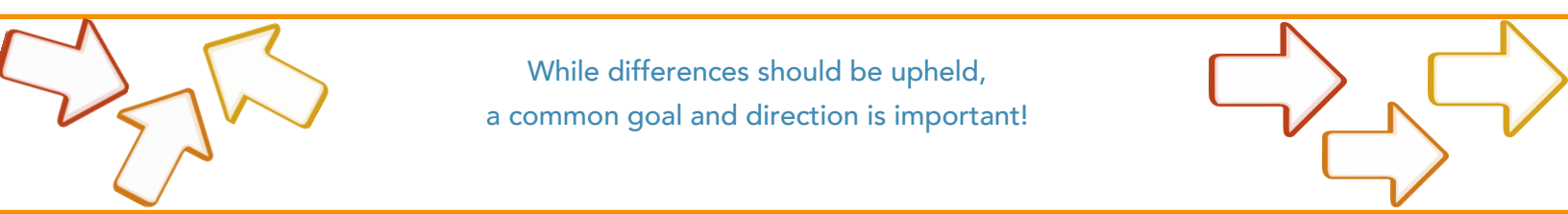
⁶ Akkerman & Bakker, 2011



Figure 1: Knowledge and expertise of E-PLM 2.0 members

Awareness of these differences has two major benefits: First, it helps to avoid conflicts and misunderstandings between team members as it is easier to understand others' perspectives and reasoning with more background information. Second, a strengthened awareness of differences helps teams to maximize the usage and benefits of their diversity.

But don't forget:





Discussing what everyone finds important in the team:

While the majority of team members discusses the concerns and aims of every one of the team (86%), 14% do not yet do so; showing room for improvement. To maximize commitment and investment, it is significant that all team members consider the work of the team as important, and that can only be ensured through the active involvement and appreciation of everyone. Have you ever wondered why crowdfunding initiatives work so well? They are actually built on a very similar principle: Giving everyone a say and contributing to something people find important.

A key term that forms part of all three word clouds presented so far (i.e., members' contributions and expertise, members' goals, and organizational goals) is the term **knowledge**. The following section of this initial report will further zoom into this term, its importance for organizations as well as ways of sharing knowledge.

Knowledge: What is your conception?

Within today's information-intense business landscape, knowledge is gaining an increasingly significant position. Scientific literature describes knowledge as the "key to strategic performance"¹⁰, a "critical resource"¹¹ or more fundamentally as the "center point of organizational existence"¹². But what exactly is knowledge and how do people tend to think of it? Two dominant conceptions of knowledge exist:



Knowledge as an object: A functional perspective

Thinking of knowledge as an object is one of the dominating conceptions. From this point of view, knowledge is material, static, explicit and formal. Accordingly, knowledge can easily be captured, codified and easily transferred to others. Think of knowledge captured in a document, such as a guideline or book, but also of knowledge imbedded in an automatic protocol or process.¹³

¹⁰ Madhavan & Grover, 1996

¹¹ Lam, 2000

¹² Kuhn & Porter, 2011

¹³ Nonaka, 1994



Knowledge as a practice: A social perspective

Thinking of knowledge as something actively performed and created in practice and interaction is the other dominating conception. From this point of view, knowledge is human, dynamic, tacit and informal. Knowledge emerges in and is the result of social interaction. Think of your knowledge of how to ride a bike, for example: You will probably find it a difficult task to put this knowledge on paper (in explicit terms), but you do manage to get this knowledge across to someone in your interaction of teaching that someone how to ride a bike. Another example are mentor-mentee meetings, in which a mentor tries to get across his or her knowledge and experiences to his or her mentee and in which the interaction between the two forms the knowledge shared.¹⁴

While both approaches have their own merits, the second and social conceptualization of knowledge is more relevant for the current stage and context of E-PLM 2.0. In this collaboration initiative, team members are supposed to collectively and collaboratively share knowledge and develop new insights. The success of these two processes significantly depends on teams' interactions, in which team members need to share their knowledge in manners that others can make sense of and learn from.

Knowledge-sharing

Knowledge-sharing, also named knowledge-giving, describes the active and intentional communicative behavior of making own knowledge available to others. Beyond solely knowledge, the general sharing of opinions and ideas falls into this category, too; likewise contributing to reaching shared understandings and facilitating successful teamwork in heterogenous teams.^{16,17} But how much knowledge-sharing is currently going on within the E-PLM 2.0 teams?



Sharing knowledge in general:

While the majority of team members generally shares knowledge (70%), 30% of team members do not yet do so; showing room for improvement. Teams can work best when team members do not hesitate to share what they know, that is, when knowledge is fully shared. Your team's capacity comes in three layers: what knowledge you as a team are aware of, what knowledge you are unaware of, and the knowledge you can potentially develop over time. Only the first layer is visible (think of the tip of an iceberg) and the view is often more than incomplete (imagine a heavy snowstorm that blurs your sight of the iceberg). The other two layers are invisible (think of the iceberg's underwater part): The knowledge in layer two is there but must be uncovered before its contribution can develop; and only then can layer three really come to take form.

¹⁴ Ipe, 2003

¹⁵ Tsoukas, 2011

¹⁶ Cummings, 2004

¹⁷ Decuyper, Dochy, & van den Bossche, 2010



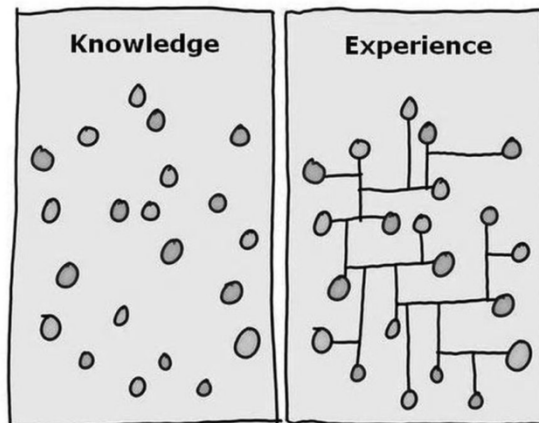
Sharing knowledge about possible solutions:

While general knowledge-sharing shows room for improvement, team members are very active when it comes to sharing possible solutions, with 92% doing so. This shows team members' commitment to helping each other and once again emphasizes the importance and possible benefit of sharing own problems, challenges, and difficulties with team members. It also confirms the general tendency of preferring to share things that make us look competent and able over confessions of things that do not yet work the way we want them to. We can only repeat this again: Do not hesitate to share and discuss the challenges you encounter in your everyday work – your team might be able to help you make big steps!



Sharing experiences:

Only a slight minority of team members shares experiences (48%); showing room for improvement. Tons of valuable knowledge are built through previous actions and interactions and form part of someone's experiences. Accordingly, sharing experiences with team members can be of enormous insight and value. Particularly, experiences can provide the rich and needed context information that helps understanding, or that helps to bond together the pebbles of knowledge:



Overall, it appears as if sharing more specific ideas and thoughts – such as concrete solutions – is easier than sharing more general insights and experiences. This is not very surprising, given that team members in general easily come to doubt the usefulness, relevance and clarity of their own contributions. It is important to reduce this hesitation; and some of the tips and tricks on the next page may help.

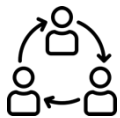
Dos and don'ts of collaborating and knowledge-sharing

In addition to creating shared understanding of goals, tasks, roles and each other's expertise, keep in mind the following Dos and Don'ts.^{18,19,20,21}



Frequent meetings and interaction

In the hectic of everyday work, it is too easy to lose teamwork and project to-dos out of sight. As a consequence, team members do not have shared ideas of their work or project, teams lack involvement, and teamwork is fragmented early on. Regularly held meetings can serve as helpful reminders and facilitators of communication and progress. What works best for most teams is agreeing on fixed dates for a longer period of time, e.g., meeting the second Monday of every month. When a meeting must be cancelled, try to plan in an additional meeting (e.g., in the week after), rather than waiting for the next regular meeting to take place.



Involve everyone in your meetings

We tend to assume that people will automatically share their knowledge and actively participate in meetings when they think it is relevant and important. However, participating and contributing is easier if own knowledge, thoughts and ideas are in line with what has been said and discussed before, rather than adding a new and different perspective. While structure and clear guidance is important, do not centralize communication too much during team meetings. It is important that everyone, not just the team leader, contributes and has a say during meetings. This is especially true when it is about determining the contents to discuss during meetings: If these are pre-determined by the team leader in isolation of the other team members, this comes with the risk of unintentionally excluding other, possibly important aspects. The same goes for preparing or processing materials for the meetings: it works best when tasks are divided equally, team members from different organizations pair up, and everyone is involved in the progress of the team.



Agree on how meetings will be run

For many of us, meetings are part of the regular, day-to-day order at work. As a consequence, we tend to take their format, structure and components for granted and forget that team members might have different ideas of how meetings should be run. To fully use the time your team has together, discuss about and decide on the usage of agendas, minutes, and meeting structures with the entire team. It is helpful to agree with everyone on the purpose of meetings (e.g., collective brainstorming sessions or update meetings) to maximize meeting effectiveness and avoid frustration of team leaders.

¹⁸ Cabrera & Cabrera, 2005

¹⁹ Ardichvilli, 2008

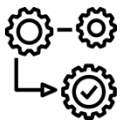
²⁰ Goh, 2002

²¹ Malhotra & Majchrzak, 2004



Proactive exchange, active listening and constructive feedback

Meetings are a great arena for communication and interaction. However, their effectiveness hinges on team members' active exchanges. Monologue-alike PowerPoint presentations, for example, do not offer much benefit when people neither actively listen nor provide feedback. Make sure that all team members agree on being an active part of the team. What about creating a shared online document where team members can write down their thoughts, ideas, questions and remarks while someone is presenting? This fosters a more interactive atmosphere, ensures that everyone gets a say and guarantees that thoughts and ideas do not get lost or overlooked.



Share insight about processes, not just outputs, and explicitly communicate progress

Time in meetings is often limited, which is why many tend to rush when updating their team members. Focus is often on new achievements, outcomes, or results and less on the approach and process that was taken to get there. When you update your team members or explain something to them, try not to focus on outcomes only. Instead, take the time to describe the overall process, your decision rationales and the steps you have taken. Valuable knowledge, information and experience is embedded in these steps (remember our iceberg metaphor of three layers of knowledge and the bike-riding analogy for socially constructed knowledge). Moreover, it makes understanding for your team members easier and stresses your progress. And who knows: Your description of the bigger picture might even trigger new ideas and discussions!



Do not hesitate to ask questions

This might look obvious, but do not hesitate asking questions when things are not 100 percent clear to you. Knowledge-sharing is a two-sided process: It does not suffice if one person shares insights; another person also needs to correctly interpret and comprehend these. The following quote perfectly illustrates how tricky this process can be:

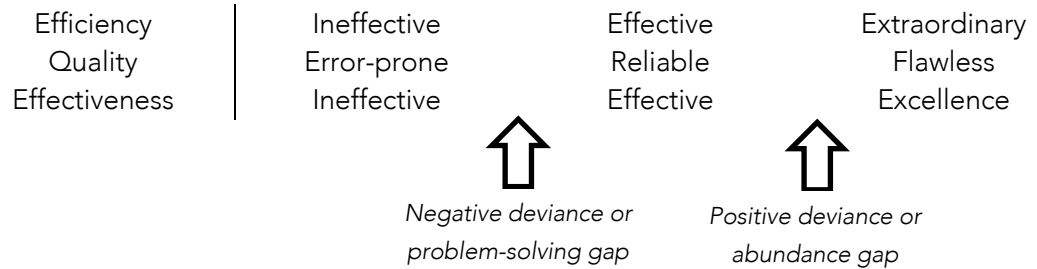
"I know that you believe you understand what you think I said, but I am not sure that you realize that what you heard is not what I meant." Robert McCloskey

Challenging to immediately understand? We fully agree, and it is also a great exemplification of how tricky generating shared understanding can be. So: Do not fear losing face or looking incompetent when asking for additional explanations. If you are the one explaining something or sharing your knowledge, it is a good idea to invite others to ask questions; thereby reducing possible inhibition thresholds.



Explicit verbalization of commitment, excitement and optimism

Think of your team meetings: How often have you actually voiced optimistic thoughts, your excitement or your commitment? Indeed, positivity is easily and quickly forgotten, especially during routine meetings and in organizational contexts. We tend to limit our efforts to solving problems, rather than further improving good things to make them even better. For example, when it is about efficiency, we often characterize things or processes as either inefficient or efficient – but is there not more to that? Can't we move further to be extraordinarily efficient?^{22,23}



Positivity is crucial for building an energetic, collaborative, and inspiring atmosphere within the team. You like someone's idea or are convinced of the usefulness of your team's contributions? Say so and move your team further towards positive deviance!



Explanations without local jargon

There is a big tendency to use and rely on overly technical and complex terms when describing parts of our knowledge, work or insights. Often, this tendency goes unnoticed as technical terms are part of our usual language at work. However, for our team members understanding our terminology might be very challenging. Think of VR technology and models, for example: These models are built of blocks that insiders would name *polygons*; a term that is not immediately clear to everyone. Adding a short description or explanation (such as polygons are small triangles that the VR model is built of) simplifies understanding. Try to be aware of too technical words and help each other with creating this awareness by signaling when someone uses a term you do not understand.

²² Sekerka, Comer, & Godwin, 2014

²³ Cameron, 2007



Try alternative ways for articulating your thoughts and ideas

Tons of our knowledge and insight are difficult to verbalize in a very straightforward manner. For example, think back to the bike-riding example we mentioned in our explanation of the social conception of knowledge. However, there are manners and ways that can help us articulate our thoughts and ideas into words that are understandable for everyone. Indeed, there is a whole array of options you could use, such as drawing a comparison to something, showing a video and many more. Next time you are explaining something, maybe try one of the following:

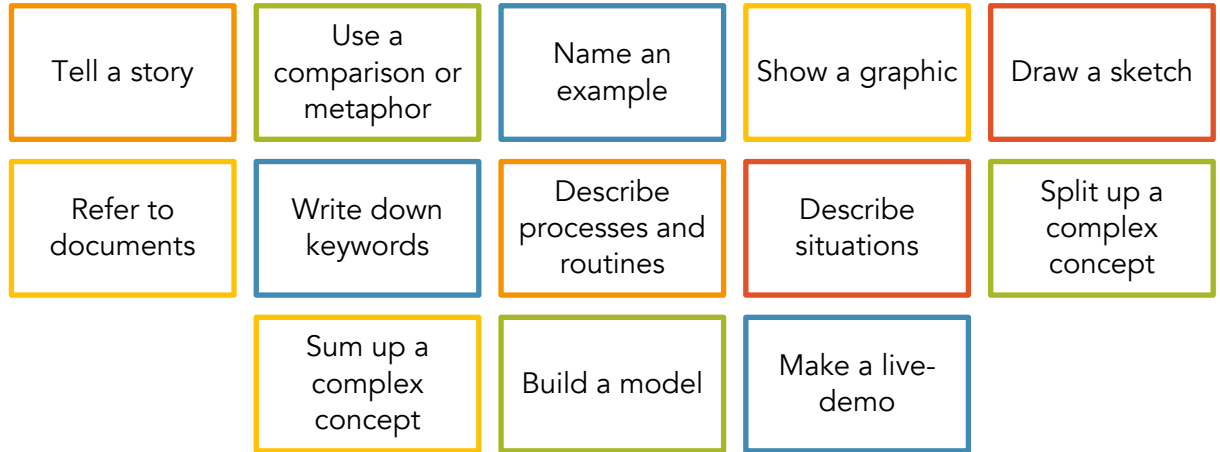


Figure 4: Mechanisms for articulating thoughts and ideas

References

- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132-169.
- Ardichvilli, A. (2008). Learning and knowledge sharing in virtual communities of practice: Motivators, barriers, and enablers. *Advances in Developing Human Resources, 10*(4), 541-554.
- Arnaud, N., & Mills, C. E. (2010). Understanding interorganizational agency: A communication perspective. *Group & Organization Management, 37*(4), 452-485.
- Cabrera, E. F., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *The International Journal of Human Resource Management, 16*(5), 720-735.
- Cameron, K. S. (2007). Positive Organizational Scholarship. In S. Clegg & J. Bailey (Eds.), *International encyclopedia of organizational studies*. Beverly Hills, CA: Sage.
- Cummings, J. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management Science, 50*, 352-364.
- Decuyper, S., Dochy, F., & van den Bossche, P. (2010). Grasping the dynamic complexity of team learning: An integrative model for effective team learning in organisations. *Educational Research Review, 5*, 111-133.
- Edmondson, A. C., & Harvey, J.-F. (2017). Cross-boundary teaming for innovation: Integrating research on teams and knowledge in organizations. *Human Resource Management Review*,
- Goh, S. C. (2002). Managing effective knowledge transfer: An integrative framework and some practice implications. *Journal of Knowledge Management, 6*(1), 23-30.
- Ipe, M. (2003). Knowledge sharing in organizations: A conceptual framework. *Human Resource Development Review, 2*(4), 337-359.
- Kuhn, T., & Porter, A. J. (2011). Heterogeneity in knowledge and knowing: A social practice perspective. In H.E. Canary & R. D. McPhee (Eds.), *Communication and organizational knowledge: Contemporary issues for theory and practice* (17-34). New York: Routledge.
- Lam, A. (2000). Tacit knowledge, organizational learning, and societal institutions: An integrated framework. *Organization Studies, 21*, 487-513.
- Lovelace, K., Shapiro, D. L., & Weingart, L. R. (2001). Maximizing cross-functional new product teams' innovativeness and constraint adherence. *The Academy of Management Journal, 44*(4), 779-793.
- Madhavan, R., & Grover, R. (1996). From embedded knowledge to embodied knowledge. *ISBM Report, 3*.
- Majchrzak, A., & More, P. H. B., & Faraj, S. (2012). Transcending knowledge differences in cross-functional teams. *Organization Sciences, 23*(4), 951-970.
- Malhotra, A., & Majchrzak, A. (2004). Enabling knowledge-creation in far-flung teams. *Journal of Knowledge Management, 8*(4), 75-88.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5*(1), 14-37.
- Rolih, S. B. (2013). Constructive conflict in teamwork. *Interdisciplinary Management Research, 9*, 105-113.
- Sekerka, L. E., Comer, D. R., & Godwin, L. N. (2014). Positive organizational ethics: Cultivating and sustaining moral performance. *Journal of Business Ethics, 119*, 435-444.
- Tsoukas, H. (2011). Representation, signification, improvisation – A three-dimensional view of organizational knowledge. In H.E. Canary & R. D. McPhee (Eds.), *Communication and organizational knowledge: Contemporary issues for theory and practice* (x-xix). New York: Routledge.
- Van der Vegt, G. S., & Bunderson, J. S. (2005). Learning and performance in multidisciplinary teams: The importance of collective team identification. *The Academy of Management Journal, 48*(3), 532-547.
- Van Knippenberg, D., & Schippers, M. C. (2007). Work group diversity. *Annual Review of Psychology, 58*, 513-541.

Credits and acknowledgements

This report has been created within the E-PLM 2.0 project, Experiment 5.1. For questions and suggestions, please contact Ellen Nathues (e.nathues@utwente.nl), dr. Mireille D. Hubers (m.d.hubers@utwente.nl) or dr. Maaïke D. Endedijk (m.d.endedijk@utwente.nl).

We want to thank the members of the E-PLM 2.0 community for their continuous support and valuable insights.

The photo used on the title page of this report is made by Rawpixel from www.unsplash.com.

All icons used in this report are made by Freepik from www.flaticon.com.