Routledge
Taylor & Francis Group

Studies in Continuing Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/csce20

Managers' sociocognitive conflicts in collaborative learning

Markku Laajala, Raija Hämäläinen, Tiina Lämsä, Elina Riivari & Sami Lehesvuori

To cite this article: Markku Laajala, Raija Hämäläinen, Tiina Lämsä, Elina Riivari & Sami Lehesvuori (07 Aug 2024): Managers' sociocognitive conflicts in collaborative learning, Studies in Continuing Education, DOI: 10.1080/0158037X.2024.2388895

To link to this article: https://doi.org/10.1080/0158037X.2024.2388895

Published online: 07 Aug 2024.

STUDIES IN CONTINUING EDUCATION
https://doi.org/10.1080/0158037X.2024.2388895

Managers' sociocognitive conflicts in collaborative learning

Markku Laajala [a], Raija Hämäläinen [b], Tiina Lämsä [c], Elina Riivari [c] and Sami Lehesvuori [d]

[a]School of Business and Economics, University of Jyväskylä, Jyväskylä, Finland; [b]Department of Education, University of Jyväskylä, Jyväskylä, Finland; [c]Open University, University of Jyväskylä, Jyväskylä, Finland; [d]Centre for Multilingual Academic Communication, University of Jyväskylä, Jyväskylä, Finland

ABSTRACT

Despite extensive research on collaborative learning and sociocognitive conflict, its impact on executive education and managers' learning is less understood. This study addresses this gap by identifying the manifestations and topics of verbalised sociocognitive conflicts and reflective collaborative discussions in managers' collaborative small-group learning settings. The research material comprises approximately 40.5 hours of video recordings from three separate small groups. This video material was analysed qualitatively using thematic analysis, guided by prior collaborative learning research, focusing on the role of sociocognitive conflict. Various forms of challenging as manifestations of verbalised sociocognitive conflicts were identified in the small-group setting at both the group and structural and individual and peer levels. The study demonstrates how managers' discussions evolve from sociocognitive conflict to reflective conversations fostering collaborative learning, highlighting the crucial role of these conflicts in managers' learning. Theoretical implications provide insights into how sociocognitive conflict evolves into collaborative learning in managers' education, suggesting insights for further research. This study has practical implications for developing collaborative learning and executive education for managers by leveraging sociocognitive conflicts.

ARTICLE HISTORY
Received 30 November 2023
Accepted 31 July 2024

KEYWORDS
collaborative learning; small group; manager; executive education; sociocognitive conflict

Introduction

Exchanging experiences among managers, group interactions and learning from peers are pivotal in managerial development (Barber 2018; Curşeu, Janssen, and Meeus 2014). Interaction and collaboration skills are increasingly essential for managerial success (Álvarez Contreras, Montes Padilla, and Osorio Martínez 2023; Duan et al. 2024). However, current training and education for managers fail to meet the demands of modern managerial work (Jäppinen and Ciussi 2016).

CONTACT Markku Laajala markku.laajala@jyu.fi, https://www.linkedin.com/in/markkulaajala/

Manager education requires research-based development that emphasises collaboration and group work (Barber 2018; Karakas, Manisaligil, and Sarigollu 2015; Shantz et al. 2023; Wuestewald 2016). Focusing on managers' learning in collaborative settings addresses this need (Paxton and Stralen 2015). Here, collaborative learning is where two or more people are learning or attempting to learn together (Dillenbourg 1999). Further exploration of this topic is necessary due to the limited research on managers' learning in collaborative settings (Lee and Bonk 2014).

Sociocognitive conflict – a fundamental element in fostering and facilitating collaborative learning – is cognitive conflict between individuals that is resolved through social interaction. This conflict naturally arises in interactive learning situations (Buchs and Butera 2004; Doise and Mugny 1984; Malzahn et al. 2022; Näykki, Isohätälä, and Järvelä 2021). Managers frequently encounter challenging interactions at work that result in sociocognitive conflicts (Chang, Wiewiora, and Liu 2021; Duan et al. 2024), therefore, collaborative learning and sociocognitive conflicts is a relevant perspective for studying managers' learning.

The present study aims to identify the manifestations and topics of verbalised sociocognitive conflicts and the reflective collaborative learning discussions that emerge from their resolution. This exploration is guided by the following research question: How do sociocognitive conflicts manifest and facilitate reflective discussions and collaborative learning in managers' small-group learning settings?

Literature review

The role of sociocognitive conflict in collaborative learning

Collaborative learning is a dynamic educational approach in which individuals work together in small groups to actively engage with content, solve problems and create new knowledge (Arvaja 2005; Dillenbourg 1999; Gillies 2019; Hämäläinen and Vähäsantanen 2011; Laal and Ghodsi 2012; Le, Janssen, and Wubbels 2018; Malmberg et al. 2019; Wismath and Orr 2015). Collaborative learning fosters a learning community where interaction and shared understanding are central (Davidson and Major 2014); individuals act as knowledge builders, while teachers facilitate group dynamics and learning (Carstensen et al. 2020; Davidson and Major 2014; Leeuwen, Hornstra, and Flunger 2023; Panitz 1999; Webb et al. 2021).

Effective collaboration involves joint problem solving, exploration and active participation (Dillenbourg, Järvelä, and Fischer 2009; Yang 2023). In collaborative learning, reflection is critical in facilitating learning. Through reflection, learners revisit and review the knowledge acquired, delve into its depths, and solidify their understanding. Reflection is a deliberate, experience-based process that often includes evaluation, critical analysis and problem solving. This process leads to insights, heightened awareness and new understandings while encouraging reconsideration and growth (Anderson 2020; Chang 2019; Zhang et al. 2023).

Inherent in collaborative learning settings, sociocognitive conflict plays a crucial role in learning (Buchs and Butera 2004; Doise and Mugny 1984; Hu and Chen 2023; Malzahn et al. 2022; Näykki, Isohätälä, and Järvelä 2021). These conflicts arise from disagreements in cognitively demanding situations and disrupt one's cognitive system

because by the differing conceptions of others. (Butera, Sommet, and Darnon 2019; Doise and Mugny 1984; Mugny and Doise 1978; Zaharia 2013). These disruptions motivate individuals to reassess their ideas and seek further information to resolve conflicts and reach equilibrium through interaction (Hu and Chen 2023). Thus, sociocognitive conflict encompasses both social and cognitive dimensions, representing a negotiation process extending beyond comfort zones, revealing diverse opinions and identities within groups (Darnon et al. 2006; Näykki, Isohätälä, and Järvelä 2021).

Particularly during the initial stages of a group process, conflict arises because of differing perspectives on tasks, objectives and procedures (Wheelan 2009; Wheelan, Davidson, and Tilin 2003; Zhang and Chiu 2012). Confrontational reactions may also arise from discrepancies in group norms or unwanted behaviours (Ditrich et al. 2022) or challenging the group leadership (Sacco and Bucciarelli 2008; Zhao, Thatcher, and Jehn 2019). Hence, careful task and goal setting are crucial for enhancing group performance (Curșeu, Janssen, and Meeus 2014; Wegge and Haslem 2013). Mastery goals prioritise the acquisition of new knowledge, while performance goals emphasise outcomes. Individuals with mastery goals regulate conflicts related to knowledge while those with performance goals focus on relational conflicts. Conflict resolution under mastery goals enhances learning, especially in challenging tasks (Darnon, Butera, and Harackiewicz 2007; Grant and Dweck 2003; Licht and Dweck 1984). To effectively function, group members must establish shared goals, values and operational methods and resolve potential leadership issues. (Frings et al. 2012; Wheelan 2009; Wheelan, Davidson, and Tilin 2003.)

In a sociocognitive conflict, the essence of learning lies in its resolution, which typically manifests in one of two ways: accommodation or transgression. Accommodation involves acknowledging the other party's viewpoint, while transgression involves both parties collaboratively seeking new solutions, possibly revising their original beliefs. When resolved, conflicts can enhance trust, motivation, commitment, and collaboration, promoting open communication focused on task accomplishment. (Bogenrieder 2002.) Also in constructive controversies, described by Johnson and Johnson (2009), the need to seek consensus arises when individual ideas clash. Properly structured and resolved, this can stimulate and promote learning (Hémon et al. 2022; Johnson, Johnson, and Smith 2000).

The study context

The study was conducted among adult Finnish learners enrolled in an executive MBA (EMBA) programme at a Finnish university. The participants were experienced managers handling various challenges in their professional roles (Chang, Wiewiora, and Liu 2021; Duan et al. 2024). The focus was an elective EMBA course titled 'Leadership and Group Dynamics', consisting of three three-day on-site sessions from September to November.

The participants were divided into three consistent small groups of five with limited prior acquaintance. These groups engaged in nine 1.5-hour sessions, totalling 40.5 hours. The learning process is based on group relations theory (McRae and Short 2009; Rice 1965) and the Tavistock method, where group members alternate primary roles in activities.

The small-group process had three learning goals: (1) reflecting on individual actions, leadership and participation in groups; (2) observing and understanding small-group dynamics; and (3) recognising the importance of shared and internalised tasks and goals for effective group functioning. An instructor facilitated each group, focusing on task engagement and equal participation to foster a collaborative learning environment without acting as the group leader (Halton 2010; Miller 1990; Shapiro and Carr 2012).

Each session began with the following instruction: 'As a group, discuss and share your experiences with small-group work, roles, interactions and leadership. This small-group process was used as the main source of experience. The other course content and insights from past group experiences were used to enrich your discussion. Share your thoughts, feelings and observations openly and honestly'.

The participants were responsible for engaging in discussions and negotiations to develop a shared understanding of the group task and its meaning (Carstensen et al. 2020; Leeuwen, Hornstra, and Flunger 2023; Panitz 1999; Webb et al. 2021). Each group undertook a learner-centred, interactive exploration to gain ideas and learn about acting and leading in a small group. In terms of learning, this 'here and now' discussion was pivotal (Miller 1990).

Peer interaction, experience exchange and group learning are crucial for managerial development (Barber 2018; Curşeu, Janssen, and Meeus 2014). Small-group instruction, developed over time, was designed to be challenging, eliciting mastery goals and potentially triggering sociocognitive conflicts that promote learning in cognitively demanding situations (Darnon, Butera, and Harackiewicz 2007). This approach helps participants develop skills and knowledge by actively engaging with complex group tasks (Curşeu, Janssen, and Meeus 2014; Darnon, Butera, and Harackiewicz 2007; Zaharia 2013). This demanding learning method is apt for managers who frequently encounter similar challenging situations in their work (Álvarez Contreras, Montes Padilla, and Osorio Martínez 2023; Chang, Wiewiora, and Liu 2021; Duan et al. 2024).

Methodology

Participants

The 15 participants were divided into three groups of five. Group 1 included one female and four male participants with an average age of 45.8 and 13.8 years of managerial experience. Group 2 included two female and three male participants with an average age of 44.6 and 12.8 years of managerial experience. Group 3 included two female and three male participants with an average age of 46.8 and 11.2 years of managerial experience. The participants represented a diverse range of industries: manufacturing, retail, finance, public administration, social and health services, and real estate.

The participants were informed about the study's purpose and goals and provided informed consent. The participants were assured of their right to withdraw at any time. We complied with EU (679/2016) articles 13, 14 and 30 by preparing a data protection notice. To ensure anonymity and confidentiality, no personally identifiable data were reported.

Data collection

All nine small-group sessions for each of the three groups were recorded using SJ400 ActionCAMs. Video material provided a comprehensive overview of the groups' actions. The videos were transcribed, coded, themed and analysed using ATLAS.ti Scientific Software.

Thematic analysis

The video material was examined qualitatively by employing thematic analysis (Braun and Clarke 2006; Fossey et al. 2002). Thematic analysis was chosen because it is a versatile qualitative method that is well suited for analysing video material in learning contexts; it allows for identifying, analysing, and reporting themes within data, enabling deeper exploration of learning environments from open-ended responses and transcriptions, offering interpretive flexibility that quantitative analysis may be missing (Thompson 2022). The analysis was conducted in accordance with previous research on the role of sociocognitive conflict in collaborative learning. We conducted both data – and theory-driven abductive analyses (Graneheim, Lindgren, and Lundan 2017; Thompson 2022; Vila-Henninger et al. 2024) to identify the specific components of sociocognitive conflict, such as the expression of disagreements and challenges (Doise and Mugny 1984; Zaharia 2013) and the reflective discussions and collaborative learning that arise from these conflicts (Anderson 2020; Chang 2019; Zhang et al. 2023).

During the analysis process, theme classification was dynamically modified. Through systematic discussions, the four authors identified two primary categories and five subcategories of sociocognitive conflicts (Seitamaa-Hakkarainen 2014). The data analysis followed Braun and Clarke's (2006) guidelines, involving eight main phases to discern various thematic forms of sociocognitive conflict and the resulting reflective discussions and collaborative learning.

Phase 1. Familiarising with the data. To analyse the dataset, the video material from each of the three groups was carefully watched and listened to multiple times, ensuring a thorough understanding of the phases of discussion and the topics that emerged among group members. (Braun and Clarke 2006). Preliminary and general notes were made.

Phase 2. Identification of sociocognitive conflicts, along with the reflective discussions and collaborative learning that arise from these conflicts. Sociocognitive conflict was identified when a group member openly challenged, disagreed with or criticised the actions, perspectives or behaviours of either the group, a fellow member or themselves (Johnson and Johnson 2009; Johnson, Johnson, and Tjosvold 2000; Näykki, Isohätälä, and Järvelä 2021). Sociocognitive conflict was also identified when a divergent idea was expressed or controversy arose in the group (Johnson and Johnson 2009). The reflective discussions emerging from the conflicts, along with the descriptions of individual learning experiences related to the conflict topics, were identified. Preliminary codes were assigned to these segments using ATLAS.ti.

Phase 3. Transcription of the chosen sections. The transcription was performed on 226 selected segments of the video material exhibiting evidence of sociocognitive conflict,

along with the reflective discussions and collaborative learning. The transcriptions were made using the ATLAS.ti Memo tool.

Phase 4. Coding the material with finalised codes. The coding focused on the transcribed sections. Codes were first assigned to sections where group members challenged, disagreed with or criticised the actions, perspectives, opinions or behaviours of the group, fellow members or themselves. After this, the reflective discussions that evolved from these conflicts and the statements describing individual learning were coded.

Phase 5. Searching for themes. During this phase, similar codes were grouped together under potential themes. For example, verbally expressed sociocognitive conflicts regarding the group task formed a preliminary theme. Overall, five themes concerning sociocognitive conflict were uncovered. This iterative process involved multiple rounds of watching and listening to the video material (Braun and Clarke 2006).

Phase 6. Reviewing themes. The initial five themes were subjected to critical review, discussion and negotiation by all the authors. This cycle of revisions resulted in two main themes: (1) sociocognitive conflicts at the group and structural levels and (2) sociocognitive conflicts at the individual and peer levels. Reflective discussion and contemplation of one's own learning followed a corresponding thematisation.

Phase 7. Defining and naming the themes. The identified sociocognitive conflicts within the two main themes were termed verbal challenges, and this expression best described the nature of the conflicts. The objective was also to determine how the data corresponded to the main themes and subthemes, ensuring sharp definitions, minimal overlap and relevance to the research question (Braun and Clarke 2006). The discussions were termed reflective discussions, addressing the specific topic of each conflict.

Phase 8. Producing the report. Finally, to present a comprehensive report on the research findings, analytical descriptions of pertinent data were integrated. To ensure anonymity, all participants were referred to using pseudonyms.

Findings

The results show that sociocognitive conflicts manifested as various forms of challenging expression, primarily during the first three of the nine small-group sessions (see Frings et al. 2012; Johnson and Johnson 2009, 1993). These conflicts – often constructive controversies – arise when individuals' ideas, information or opinions clash, requiring consensus (Johnson and Johnson 2009). Conflict resolution occurs through both accommodation and transgression (Bogenrieder 2002).

The managers' verbalised sociocognitive conflicts arose at the group/structural and individual/peer levels. At the group level, conflicts centred on challenging the group's ability to complete tasks or its overall actions. At the individual level, conflicts focus on questioning the actions or opinions of both oneself and others, including group leadership. As the learning process progresses, initial conflicts evolve into reflective discussions on related topics. Early conflicting and critical discourse transformed into reflective conversations, addressing these topics constructively fostering new

understanding, ideas, and collaborative learning (see Anderson 2020; Chang 2019; Zhang et al. 2023).

The following sections explore and exemplify the different forms of sociocognitive conflict and their transformation into reflective discussions and collaborative learning, as observed in the data.

Resolving sociocognitive conflict at the group and structural levels

From challenging tasks and actions to reflective discussion and collaborative learning

Our results show that a prevalent form of sociocognitive conflict involved group members frequently challenging the group task. Comments and discussions often reflected frustration, anxiety, uncertainty and annoyance. This is evident in examples where group members expressed that the group task felt unclear:

Tommy: '*The group's task, the vision, purpose, it's not entirely clear*'. In response to Tommy's comment, Martin stated, '*I have not truly received a much clearer task assignment than this one … but it is just that … the concreteness is just so … vague … '* Anna continued: '*The goal is so broad and there are no subgoals … so we do not know what to do … '* In the group's initial phase, uncertainty and diverse interpretations of the task and goals emerged. Sociocognitive conflict arose when the group members began to express their uncertainty or differing perspectives, enabling the collaborative building of a shared understanding moving forward (see Wheelan 2009; Wheelan, Davidson, and Tilin 2003; Zhang and Chiu 2012).

The next comments show that, despite varied opinions and initial uncertainty about the task, the members endeavoured to reach a collective comprehension: Jack: '*When Mick changed the discussion topic, it bothered me because when we were supposed to examine this group, we went outside the group. I thought that we were going down the wrong path when we were supposed to investigate this group. However, then when it started to progress, is this then … like an easier way?*' Tanya: '*In terms of ideas, we have hit a wall. The topic has probably not been fully explored, but we have hit a dead end. I wonder if this is truly what we should be doing?*'

Despite an awareness of task deviations, the examples illustrate the difficulty of staying focused and the ease of distraction. Task uncertainty hindered issue processing, requiring repeated clarification. However, openly voicing dissent and uncertainties facilitated collective resolution and a shared perspective, which can promote learning, particularly in complex tasks (Darnon, Butera, and Harackiewicz 2007).

As the group process progressed, the nature of the discussion significantly changed. The frustrated speech that challenged, criticised and conflicted aspects related to the group's actions transformed into more reflective discussion. Insights, ideas, and learning began to stand out. A very clear change in the discussion about the group task was evident during the fourth session when the group task was clarified and internalised, as indicated in these comments: John: '*Now the group task is starting to feel clear, it is clicked, now I understand what and why we're doing this*'. Tommy: *'If you think about the difference between the last time and this time, well, it is massive because last time our task felt very unclear. Now, we have got some clue what we need to do here*'.

During the fourth session, Pamela expressed relief, noting she no longer worried about whether the group was fulfilling its task and could instead focus on the content: '*I do not have to worry anymore about whether we're on track with the group task. In the beginning, I was constantly concerned about whether we were on track. We have made a lot of progress. Let us not overthink it. Let us just go with the flow!*'

The previous examples demonstrate how clarifying the group task significantly impacts group functioning. Resolving sociocognitive conflicts, mainly through transgression (Bogenrieder 2002), clarified the group's purpose, boosted participants' motivation and alleviated concerns about the task (see Frings et al. 2012). Towards the learning process's end, comments highlighted positive aspects of the small group, with members expressing greater satisfaction than initially. Matt: '*We have been here for a while, and this group has evolved on a different scale than the other groups in the course'*. Tanya: *'The cohesion of this small group has grown faster and tighter than that of the other, larger and more random groups in the course'*. Tommy: *'I was initially sceptical, but then I caught on to the idea, and this is actually a fantastic way to learn!*' The group members noticed how the group had developed and solidified. They also started to gain insights into collaborative learning methods in a small-group setting and that learning had truly occurred.

Additionally, during the last sessions, the discussions further evolved into reflective applied conversation. Perspectives and ideas emerged on how collaborative learning can be applied in workplace managerial situations, as Kate and Mick remarked:

Kate: *'I'll clarify, remind and consciously review the group task in my workplace groups'*. Mick*: 'I have initiated a routine at the end of each work meeting: a brief reflection discussion on how the meeting went: "How did we do? How do I assess my own performance?" etc'*. Mick continued: *'Emphasising and clarifying the group task in workplace groups is important, discussing roles, time management focusing on the task, requiring preparation before meetings … '* Thus, the group members progressed from challenging and conflictive expressions to reflective discussions and applied ideation that created new ways of acting in everyday managerial work.

Resolving sociocognitive conflict at the individual and peer levels

From challenging one's own actions or opinions to reflecting on discussion and collaborative learning

The results showed that challenging one's own actions or opinions was a highly prevalent form of sociocognitive conflict during the first small-group sessions. Anna strongly criticised herself for not comprehending the group task.: '*Yesterday, I had a feeling that I was completely lost. I did not understand anything*'. Jake criticised his contribution to the group: '*To be honest, I'm not fully invested in this. I'm just participating half-heartedly. After all, we're only human … '* Jack continued with self-criticism continued: '*It is not a pleasant situation when you realise that the alarm did not go off or for some weird reason you did not react to it … but I'm sure we will get through this situation as a team!*'

The previous discussion reflects the initial frustration of the group's learning process. Frustration was often expressed in the group as a challenge directed at one's own actions, which can be a safe way for the group's operation. In any case, frustration should be

expressed aloud, leading to sociocognitive conflict, and the issue can be addressed through collaborative discussion.

As the group process advanced, the discourse about individual actions and thoughts significantly transformed. Initially, frustrated dialogue criticising group members' actions gradually shifted towards constructive and reflective discussion (Chang 2019; Zhang et al. 2023). Insights, ideas and learning emerged during collaboration. This positive shift occurred as sociocognitive conflicts resolved, eliminating ambiguities and differing views on the group task. The change was evident in the last session's conversation:

Tessa: '*I should better understand how others perceive me.'* Jake: *'Many can interpret me differently'*. Mick: *'Is one's interpretation necessarily correct?*' Jake*: 'I notice that I make interpretations; I should observe more carefully and avoid excessive interpretation'*. Tommy: *'I really need to learn to observe without overinterpreting, or at least ask if interpretation is accurate.'* The discussion demonstrates how the group members progressed from self-critical and self-challenging speech to mutual discussion through transgression. The discussion was reflective, building on previous speeches, generating ideas and new thinking as signs of collaborative learning. The same phenomenon was clearly observable in these reflections by Jonathan and Jack during the seventh session: Jonathan: '*As a member of this group, I feel like I can take up space. I have grown as a member of this group. It is very enlightening to speak out about my experiences and observations within the group. I have never done anything like this before'*. Jack: '*After this, I no longer see groups in the same way as before!*' The comments reveal the group members developing in their roles as participants and observers of the group's activities.

The group instructors refrained from assuming leadership roles. Instead, they assigned a common task and goal, maintained focus and ensured active participation. However, this does not mean that group members did not require leadership, decision-making or substantive assistance from the instructors in carrying out the group task. This may have led to frustration among the group instructors. Challenging group leadership was a somewhat less common form of sociocognitive conflict but was often related to the instructors' definition of the group task or their assumed role during the initial small-group learning sessions.

For example, Martin criticised the group instructor for not leading the group: '*When a group is just left to be … that is when things like this happen!*' Tina: '*He/She (the group instructor) is completely silent on the sidelines here!*' Tessa drew her conclusion from this, stating that, counter to expectations, the group facilitator might not be the group leader after all*: 'He/she (the group instructor) does not seem to change his/her approach. We know now that he/she is not the leader of this group!'*. Even though it was known that the facilitator did not act as a leader, the longing for a leader was strong (see Sacco and Bucciarelli 2008; Zhao, Thatcher, and Jehn 2019). Again, it is important that frustration and expectations are voiced aloud, allowing a sociocognitive conflict to arise, enabling the group to discuss and reflect on leadership collaboratively.

As the learning process progressed, the conversation about leadership shifted towards a more analytical and reflective discussion, mainly through accommodative conflict resolving. The group members also came to realise that the absence of a designated leader within the group was deliberate, as seen during the eighth session in Jonathan's contemplation: '*We do not have a chairperson in this group, and no one assumes formal leadership*. Pamela and Mick: *'This is an egalitarian group with no designated*

leader'. Jack posed an interesting question to the group: '*What would happen if suddenly someone were to take on leadership in this group?*' The group had now accepted the instructor's role and the fact that there was no designated leader. The group was considered equal, and at this stage, someone taking on a leader's role might have even been questioned.

During the final group session, in the discussion about leadership, the participants reflected on their own leadership in work-related situations. Tessa: '*The development of one's own leadership is a long journey, and it is ongoing. Leadership evolves, and one realises what does not work, and another approach or style might be better*'. Jack: '*Do we have to choose between leading people and leading tasks? Or can we have both at the same time, finding a middle ground?*' Tommy: '*This group has reinforced my own perspectives and helped me understand that I need to adapt my approach when working with different people to better integrate into the group and team*'. Especially in executive education, these discussions are highly valuable, serving the learning objectives of this small-group process and entire course. Reflecting on one's own leadership together with other leaders is a key element in developing learning as a leader (see Anderson 2020; Chang 2019; Zhang et al. 2023).

From challenging another group member's actions or opinions to reflecting discussion and collaborative learning

Challenging another group member was less common than the other forms of sociocognitive conflict. When it happened, confrontation was usually expressed politely and respectfully but also included humour or playful sarcasm. Tessa directed a critical comment to another group member who was not adequately focusing on the group task: '*During our discussion, you took out your phone … I thought to myself, here we go!*' Group members also sought to get other members back on track when they perceived that the discussion had gone off-topic. Anna: '*That is truly interesting … but it is not part of our group task!*' Another group member's behaviour could also be commented on sarcastically, as in Mick's remark to Jack when he was late for the small-group session: '*Incredible!*' Challenging another group member became polite, constructive controversies, where all members held executive roles in their working lives. The group members felt that they were together, thus avoiding inappropriate challenges because these might not have achieved anything positive (see Ditrich et al. 2022; Johnson, Johnson, and Smith 2000).

As the group process progressed, remarks regarding other group members evolved into constructive feedback, expressions of appreciation and reflection on their actions. During the last group session, Martin wanted to emphasise that his appreciation for Tommy had remained intact, despite frustration challenging the relationships among group members at the beginning of the process: '*At the beginning of the group, the respect towards each other did not diminish, even though we disagreed and were different. Even when you (Tommy) openly expressed frustration, it did not affect at all how respected a member of the group you are and how much I appreciate you*'. Martin also realised that he made a wrong interpretation of Tommy's actions. Through resolving accommodative conflict, he wanted to clarify the matter to Tommy and the group and apologise: '*I challenged you because I interpreted that you did not consider this type of reflection as important as taking action. I now realise that was only my interpretation*

because you did not actually say that'. Tommy gave Anna positive feedback, admiring her resilience under pressure: '*You come into the group from a place of high pressure and stress, you join the conversation immediately. Quite a feat, respect. Your ability to handle pressure is remarkable'*. Tim emphasised how important it was for group cohesion and trust when Jerry shared a very personal experience within the group: '*When Jerry shared this very personal matter, it solidified the group. We are now more of a team than before'*. Kate wanted to thank John for the positive feedback she received: '*John, it was so lovely of you to say that to me!'*

The examples illustrate a notable shift in members' interactions. As sociocognitive conflicts regarding the group task and leadership were resolved, attitudes towards fellow members improved. Members readily admitted their mistakes and extended appreciation and gratitude, recognising each other's contributions to the group's development.

Discussion

The present study aimed to demonstrate how sociocognitive conflicts facilitate collaborative learning in managers' small-group settings. Verbal expressions of challenge served as manifestations of sociocognitive conflict. These conflicts occurred predominantly within the first three out of nine small-group sessions. We observed two levels of challenges: (1) at the group/structural level, involving challenges to the group task and actions, and (2) at the individual/peer level, involving challenges to one's own actions or opinions or of fellow group members. These challenges were conveyed courteously and constructively, allied to constructive controversies (Johnson and Johnson 2009). Despite being experienced professionals, the participants exhibited a culture of mutual respect and consideration. As the small-group process progressed, conflicts were resolved through accommodative and transgressive methods (Bogenrieder 2002), leading to reflective discussions that supported collaborative learning (Buchs and Butera 2004; Hémon et al. 2022; Hu and Chen 2023; Johnson and Johnson 2009; Johnson, Johnson, and Smith 2000; Malzahn et al. 2022; Näykki, Isohätälä, and Järvelä 2021).

Resolving sociocognitive conflict at the group and structural levels

From challenging tasks and actions to reflective discussion and collaborative learning

This study highlights the importance of a shared understanding of group tasks for effective collaboration (Curşeu, Janssen, and Meeus 2014). Internalising a common definition of a task fosters open communication, facilitating the identification of discrepancies in individual perspectives (Anderson 2020; Chang 2019; Zhang et al. 2023). These emerging sociocognitive conflicts can be constructive: Vocalising uncertainties and varied interpretations stimulates reflective discussions and ultimately leads to a more cohesive understanding of the task (Darnon, Butera, and Harackiewicz 2007; Grant and Dweck 2003; Licht and Dweck 1984; Näykki, Isohätälä, and Järvelä 2021). When conflict resolution in groups is driven by mastery goals, this enhances learning outcomes, particularly in challenging tasks (see Darnon, Butera, and Harackiewicz 2007). This process paves the way for collaborative learning, underscoring the critical role of a shared internalised understanding of the

group task for successful group functioning. Our analysis suggests that effective group operation necessitates a common understanding and internalisation of the task by all members.

Resolving sociocognitive conflict at the individual and peer levels

From challenging one's own actions or opinions to reflecting on discussion and collaborative learning

Our findings reveal a notable occurrence of self-challenging and self-criticism within groups as manifestations of sociocognitive conflict. Initial frustrations often lead to self-criticism and challenges to one's own actions, suggesting disruptions in individuals' cognitive processes (Hu and Chen 2023). Moreover, reflecting on challenging topics individually may prevent conflicts from escalating into direct confrontations.

As the small-group process progresses, the conversation shifts from self-directed criticism to constructive reflection (Anderson 2020; Chang 2019; Zhang et al. 2023). The presence and resolution of sociocognitive conflict fostered reflective discussions and collaborative learning, particularly regarding individual participation within the group.

Initially, groups often seek and rely on leadership. Challenging group leadership can resolve unrealistic expectations and foster independence and efficiency. However, this requires sufficient trust and security within the group. When uncertainty exists, challenging leadership may indicate a need for stronger guidance. Nonetheless, for successful collaborative learning, instructors should allow space for group members to develop a shared understanding through reflective discussion (Dillenbourg, Järvelä, and Fischer 2009; Sacco and Bucciarelli 2008; Wheelan 2009; Yang 2023; Zhao, Thatcher, and Jehn 2019).

From challenging another group member's actions or opinions to reflecting discussion and collaborative learning

Our findings have revealed that challenges towards other group members were typically expressed respectfully, often with humour or sarcasm, fostering constructive controversies. This approach can minimise the risk of offence and facilitated reflective discussions and collaborative learning (Hémon et al. 2022; Johnson, Johnson, and Smith 2000). By the end of the small-group process, the participants delved into practical applications of their shared knowledge in workplace settings while offering positive feedback to peers. Such feedback significantly influences group commitment, motivation and atmosphere, enhancing collaborative learning (Davidson and Major 2014; Dillenbourg, Järvelä, and Fischer 2009; Yang 2023).

Implications

Our research has theoretical and practical implications for managers' collaborative learning. Theoretically, it fills a gap in the study of managers' sociocognitive conflicts in collaborative learning (Lee and Bonk 2014), showing the concrete role of sociocognitive conflict in the emergence of collaborative learning and providing a basis for further research. Studying how managers engage in collaborative learning provides valuable insights into aligning managerial education with the contemporary needs of workplaces,

which increasingly emphasise collaboration and interaction skills (Jäppinen and Ciussi 2016).

The practical implications underscore three perspectives for enhancing managerial education. First, we advocate for establishing learner-centred learning environments for managers, contrasting with traditional teacher-centred approaches (Carstensen et al. 2020; Leeuwen, Hornstra, and Flunger 2023; Panitz 1999; Webb et al. 2021). In these settings, reflective discussions promote collaborative learning, fostering the generation of new ideas and insights and facilitating the development of managerial skills through collaboration.

Second, our study highlights the importance of achieving a shared understanding and internalisation of demanding group tasks and goals within a collaborative learning setting (see Curşeu, Janssen, and Meeus 2014; Wegge and Haslem 2013; Zhang and Chiu 2012). As an instructor, it is crucial not to presume understanding of the group task but instead provide time and space for group members to discuss various interpretations. This collaborative process fosters a unified perspective and deep comprehension of the group task, paving the way for effective and purposeful group action.

Third, facilitating the emergence of sociocognitive conflicts in collaborative learning among managers is crucial. Our analysis indicates that sociocognitive conflicts facilitate the exchange of diverse perspectives, opinions and experiences, thereby fostering reflective discussions and collaborative learning (Avry et al. 2020; Johnson and Johnson 2009; Johnson, Johnson, and Tjosvold 2000; Näykki, Isohätälä, and Järvelä 2021; Noroozi et al. 2013). However, maintaining a trusting and respectful atmosphere is important for encouraging open interaction, which is essential for effective collaborative learning groups.

Limitations, ethical reflection and future research

This study has several limitations. The modest and homogeneous sample size, composed of individuals from similar geographical, cultural and socioeconomic backgrounds, limits the findings' generalisability. However, the sample accurately reflects the target demographic for advancing collaborative learning initiatives. Data collection relied solely on video recordings, excluding supplementary methods such as interviews or reflective essays that could have enriched the dataset. Despite this, the video content provided genuine insights into authentic collaborative learning settings.

The first author also functioned as an instructor for one of the small groups. This dual role might have influenced the interpretation process of the research data. To mitigate potential biases, the primary researcher remained vigilant throughout, and concerted efforts were made by all the authors to ensure objective data analysis and adherence to rigorous research standards.

This study provides new insights into the manifestations of sociocognitive conflicts and their pivotal role in managers' collaborative learning. Building on this research, future studies can delve deeper into the characteristics of managers' collaborative learning. The aim is to precisely identify the interactions and discussions that enhance this learning and pinpoint the critical factors for its success. Ultimately, the goal is to

develop a detailed understanding of managers' collaborative learning, offering robust insights for improving executive education from this perspective.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the Academy of Finland [grant numbers 336231 and 353325].

ORCID

Markku Laajala http://orcid.org/0000-0003-0200-3398
Raija Hämäläinen http://orcid.org/0000-0002-3248-9619
Tiina Lämsä http://orcid.org/0000-0002-7565-5023
Elina Riivari http://orcid.org/0000-0002-8923-6452
Sami Lehesvuori http://orcid.org/0000-0003-3889-5279

References

Álvarez Contreras, D. E., J. D. Montes Padilla, and C. D. Osorio Martínez. 2023. "Management Skills as a Factor of Business Competitiveness." *Región Científica* 2 (2): 2023109. https://doi.org/10.58763/rc2023109.

Anderson, J. 2020. "Reflection." *ELT Journal* 74 (4): 480–483. https://doi.org/10.1093/elt/ccaa039.

Arvaja, M. 2005. *Collaborative Knowledge Construction in Authentic School Contexts*. University of Jyväskylä, Institute for Educational Research. Research Reports 14. https://jyx.jyu.fi/bitstream/handle/123456789/44295/978-951-39-3227-5.pdf?sequence=1&isAllowed=y.

Avry, S., G. Chanel, M. Bétrancourt, and G. Molinari. 2020. "Achievement Appraisals, Emotions and Socio-Cognitive Processes: How They Interplay in Collaborative Problem-Solving?" *Computers in Human Behavior* 107:article 106267. https://doi.org/10.1016/j.chb.2020.106267.

Barber, S. 2018. "A Truly 'Transformative' MBA: Executive Education for the Fourth Industrial Revolution." *Journal of Pedagogic Development* 8 (2), https://www.beds.ac.uk/jpd/volume-8-issue-2/a-truly-transformative-mba-executive-education-for-the-fourth-industrial-revolution/.

Bogenrieder, I. 2002. "Social Architecture as a Prerequisite for Organizational Learning." *Management Learning* 33 (2): 197–212. https://doi.org/10.1177/1350507602332003.

Braun, V., and V. Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. https://doi.org/10.1191/1478088706qp063oa.

Bruffee, K. A. 1992. "Collaborative Learning and the 'Conversation of Mankind'." In *Collaborative Learning: A Sourcebook for Higher Education*, edited by A. S. Goodsell, M. R. Maher, V. Tinto, B. L. Smith, and J. MacGregor, 30–46. University Park, PA: National Center on Postsecondary Teaching, Learning, and Assessment. https://files.eric.ed.gov/fulltext/ED357705.pdf.

Buchs, C., and F. Butera. 2004. "Socio-Cognitive Conflict and the Role of Student Interaction in Learning." *New Review of Social Psychology* 3 (1–2): 80–87. https://serval.unil.ch/resource/serval:BIB_33859.P001/REF.pdf.

Butera, F., C. Darnon, and G. Mugny. 2011. "Learning from Conflict." In *Rebels in Groups: Dissent, Deviance, Difference and Defiance*, edited by J. Jetten and M. J. Hornsey, 36–53. Oxford: Wiley-Blackwell. http://doi.org/10.1002/9781444390841.ch3.

Butera, F., N. Sommet, and C. Darnon. 2019. "Sociocognitive Conflict Regulation: How to Make Sense of Diverging Ideas." *Current Directions in Psychological Science* 28 (2): 145–151. https://doi.org/10.1177/0963721418813986.

Carstensen, S., C. Kjaer, S. Möller, and M. Bloksgaard. 2020. "Implementing Collaborative, Active Learning Using Peer Instructions in Pharmacology Teaching Increases Students' Learning and Thereby Exam Performance." *European Journal of Pharmacology* 867 (15): article 172792. https://doi.org/10.1016/j.ejphar.2019.172792.

Chang, B. 2019. "Reflection in Learning." *Online Learning* 23 (1): 95–110. https://doi.org/10.24059/olj.v23i1.1447.

Chang, A., A. Wiewiora, and Y. Liu. 2021. "A Socio-Cognitive Approach to Leading a Learning Project Team: A Proposed Model and Scale Development." *International Journal of Project Management* 39 (6): 646–657. https://doi.org/10.1016/j.ijproman.2021.05.003.

Curşeu, P. L., S. E. Janssen, and M. T. Meeus. 2014. "Shining Lights and Bad Apples: The Effect of Goal-Setting on Group Performance." *Management Learning* 45 (3): 332–348. https://doi.org/10.1177/1350507613483425.

Darnon, C., F. Butera, and J. M. Harackiewicz. 2007. "Achievement Goals in Social Interactions: Learning with Mastery vs. Performance Goals." *Motivation and Emotion* 31 (1): 61–70. https://doi.org/10.1007/s11031-006-9049-2.

Darnon, C., D. Muller, S. Schrager, N. Pannuzzo, and F. Butera. 2006. "Mastery and Performance Goals Predict Epistemic and Relational Conflict Regulation." *Journal of Educational Psychology* 98 (4): 766–776. https://doi.org/10.1037/0022-0663.98.4.766.

Davidson, N., and C. H. Major. 2014. "Boundary Crossings: Cooperative Learning, Collaborative Learning, and Problem-Based Learning." *Journal on Excellence in College Teaching* 25 (3–4): 7–55. https://www.sun.ac.za/english/learning-teaching/ctl/Documents/Davidson%202014%20BoundaryCrossings.pdf.

Dillenbourg, P. 1999. "What Do You Mean by Collaborative Learning?" In *Collaborative Learning: Cognitive and Computational Approaches*, edited by P. Dillenbourg, 1–19. Oxford: Elsevier. https://telearn.archives-ouvertes.fr/hal-00190240/document.

Dillenbourg, P., S. Järvelä, and F. Fischer. 2009. "The Evolution of Research on Computer-Supported Collaborative Learning." In *Technology-Enhanced Learning*, edited by N. Balacheff, S. Ludvigsen, T. d. Jong, A. Lazonder, and S. Barnes, 3–19. Dordrecht: Springer. https://doi.org/10.1007/978-1-4020-9827-7_1.

Ditrich, L., A. Lüders, E. Jonas, and K. Sassenberg. 2022. "You Gotta Fight! – Why Norm-Violations and Outgroup Criticism Lead to Confrontational Reactions." *Cognition and Emotion* 36 (2): 254–272. https://doi.org/10.1080/02699931.2021.2002823.

Doise, W., and G. Mugny. 1984. *The Social Development of the Intellect*. Oxford: Pergamon.

Duan, S., M. Exter, D. Tagare, M. Sabin, and S. Janakiraman. 2024. "Essential Competencies for Computing Managers: Skills and Dispositions." *Education and Information Technologies* 29 (2): 2539–2578. https://doi.org/10.1007/s10639-023-11869-4.

Fossey, E., C. Harvey, F. McDermott, and L. Davidson. 2002. "Understanding and Evaluating Qualitative Research." *Australian & New Zealand Journal of Psychiatry* 36 (6): 717–732. https://doi.org/10.1046/j.1440-1614.2002.01100.x.

Frings, D., J. Hurst, C. Cleveland, J. Blascovich, and D. Abrams. 2012. "Challenge, Threat, and Subjective Group Dynamics: Reactions to Normative and Deviant Group Members." *Group Dynamics: Theory, Research, and Practice* 16 (2): 105–121. https://doi.org/10.1037/a0027504.

Gillies, R. 2019. "Promoting Academically Productive Student Dialogue During Collaborative Learning." *International Journal of Educational Research* 97:200–209. https://doi.org/10.1016/j.ijer.2017.07.014.

Graneheim, U. H., B.-M. Lindgren, and B. Lundan. 2017. "Methodological Challenges in Qualitative Content Analysis: A Discussion Paper." *Nurse Education Today* 56 (September 2017): 29–34. https://doi.org/10.1016/j.nedt.2017.06.002.

Grant, H., and C. S. Dweck. 2003. "Clarifying Achievement Goals and Their Impact." *Journal of Personality and Social Psychology* 85 (3): 541–553. https://doi.org/10.1037/0022-3514.85.3.541.

Halton, W. 2010. "Group Relations: Achieving a New Difference." *Organizational and Social Dynamics* 10 (2): 219–237. https://pep-web.org/search/document/OPUS.010.0219A.

Hämäläinen, R., and K. Vähäsantanen. 2011. "Theoretical and Pedagogical Perspectives on Orchestrating Creativity and Collaborative Learning." *Educational Research Review* 6 (3): 169–184. https://doi.org/10.1016/j.edurev.2011.08.001.

Hémon, B., S. Cherbonnier, E. Michinov, E. Jamet, and N. Michinov. 2022. "When Instructions Based on Constructive Controversy Boost Synergy in Online Groups." *International Journal of Human–Computer Interaction* 40 (5): 1102–1110. https://doi.org/10.1080/10447318.2022.2132028.

Hu, L., and G. Chen. 2023. "A Systematic Review and Meta-Analysis of Productive Peer Talk Moves." *Journal of Behavioral Education. March* 2023), https://doi.org/10.1007/s10864-023-09513-9.

Jäppinen, A.-K., and M. Ciussi. 2016. "Indicators of Improved Learning Contexts: A Collaborative Perspective on Educational Leadership." *International Journal of Leadership in Education* 19 (4): 482–504. https://doi.org/10.1080/13603124.2015.1015616.

Johnson, D. W., and R. T. Johnson. 1993. "Creative and Critical Thinking Through Academic Controversy." *The American Behavioral Scientist* 37 (1): 40. https://www.proquest.com/scholarly-journals/creative-critical-thinking-through-academic/docview/194861404/se-2.

Johnson, D. W., and R. T. Johnson. 2009. "Energizing Learning: The Instructional Power of Conflict." *Educational Researcher* 38 (1): 37–51. https://doi.org/10.3102/0013189X08330540.

Johnson, D. W., R. T. Johnson, and K. A. Smith. 2000. "Constructive Controversy: The Educative Power of Intellectual Conflict." *Change: The Magazine of Higher Learning* 32 (1): 28–37. https://doi.org/10.1080/00091380009602706.

Johnson, D. W., R. T. Johnson, and D. Tjosvold. 2000. "Constructive Controversy: The Value of Intellectual Opposition." In *The Handbook of Conflict Resolution: Theory and Practice*, edited by M. Deutsch and P. T. Coleman, 65–85. San Francisco: Jossey-Bass/Wiley.

Karakas, F., A. Manisaligil, and E. Sarigollu. 2015. "Management Learning At the Speed of Life: Designing Reflective, Creative, and Collaborative Spaces for Millennials." *The International Journal of Management Education* 13 (3): 237–248. https://doi.org/10.1016/j.ijme.2015.07.001.

Laal, M., and S. M. Ghodsi. 2012. "Benefits of Collaborative Learning." *Procedia - Social and Behavioral Sciences* 31:486–490. https://doi.org/10.1016/j.sbspro.2011.12.091.

Le, H., J. Janssen, and T. Wubbels. 2018. "Collaborative Learning Practices: Teacher and Student Perceived Obstacles to Effective Student Collaboration." *Cambridge Journal of Education* 48 (1): 103–122. https://doi.org/10.1080/0305764X.2016.1259389.

Lee, H., and C. J. Bonk. 2014. "Collaborative Learning in the Workplace: Practical Issues and Concerns." *International Journal of Advanced Corporate Learning (iJAC)* 7 (2): 10–17. https://doi.org/10.3991/ijac.v7i2.3850.

Leeuwen, A., L. Hornstra, and B. Flunger. 2023. "Need Supportive Collaborative Learning: Are Teachers Necessary Or Do Students Support Each Other's Basic Psychological Needs?" *Educational Studies* 49 (1): 131–146. https://doi.org/10.1080/03055698.2020.1835613.

Licht, B. G., and C. S. Dweck. 1984. "Determinants of Academic Achievement: The Interaction of Children's Achievement Orientations with Skill Area." *Developmental Psychology* 20 (4): 628–636. https://doi.org/10.1037/0012-1649.20.4.628.

Malmberg, J., E. Haataja, T. Seppänen, and S. Järvelä. 2019. "Are We Together Or Not? The Temporal Interplay of Monitoring, Physiological Arousal and Physiological Synchrony During a Collaborative Exam." *International Journal of Computer-Supported Collaborative Learning* 14 (4): 467–490. https://doi.org/10.1007/s11412-019-09311-4.

Malzahn, N., V. Schwarze, S. C. Eimler, F. Aprin, S. Moder, and H. U. Hoppe. 2022. "How to Measure Disagreement As a Premise for Learning from Controversy in a Social Media Context." *Research and Practice in Technology Enhanced Learning* 18 (February 2023): 243–272. https://rptel.apsce.net/index.php/RPTEL/article/view/2023-18012.

McRae, M. B., and E. L. Short. 2009. "Understanding Groups as Psychodynamic Systems in the Context of Racial and Cultural Factors: Theoretical Framework." In *Racial and Cultural Dynamics in Group and Organizational Life: Crossing Boundaries*, edited by M. B. McRae and E. L. Short, 1–11. Thousand Oaks: SAGE Publications Inc.

Miller, E. J. 1990. "Experiential Learning in Groups I: The Development of the Leicester Model." In *The Social Engagement of Social Science: The Socio-Psychological Perspective*, edited by E. Trist and H. Murray, Vol. I, 165–185. London: Free Association Books.

Mugny, G, and W Doise. 1978. "Socio-cognitive conflict and structure of individual and collective performances." *European Journal of Social Psychology* 8 (2): 181–192. https://doi.org/10.1002/ejsp.2420080204.

Näykki, P., J. Isohätälä, and S. Järvelä. 2021. "You Truly Brought All Your Feelings Out: Scaffolding Students to Identify the Socioemotional and Sociocognitive Challenges in Collaborative Learning." *Learning, Culture and Social Interaction* 30 (Part A): article 100536. https://doi.org/10.1016/j.lcsi.2021.100536.

Noroozi, O., S. D. Teasley, H. J. A. Biemans, A. Weinberger, and M. Mulder. 2013. "Facilitating Learning in Multidisciplinary Groups with Transactive CSCL Scripts." *Computer Supported Learning* 8 (2): 189–223. https://doi.org/10.1007/s11412-012-9162-z.

Panitz, T. 1999. *Collaborative Versus Cooperative Learning: A Comparison of the Two Concepts Which Will Help Us Understand the Underlying Nature of Interactive Learning*. U.S. Department of Education Office of Educational Research and Improvement. Educational Resources Information Center (ERIC). https://files.eric.ed.gov/fulltext/ED448443.pdf.

Paxton, D., and S. Stralen. 2015. "Developing Collaborative and Innovative Leadership: Practices for Fostering a New Mindset." *The Journal of Leadership Education* 14 (4): 11–25. https://doi.org/10.12806/V14/I4/I1.

Rice, A. K. 1965. *Learning for Leadership: Interpersonal and Intergroup Relations*. Routledge.

Sacco, K., and M. Bucciarelli. 2008. "The Role of Cognitive and Socio-Cognitive Conflict in Learning to Reason." *Mind & Society* 7 (1): 1–19. https://doi.org/10.1007/s11299-007-0029-3.

Seitamaa-Hakkarainen, P. 2014. "Kvalitatiivinen sisällönanalyysi." *Metodix*. https://metodix.fi/2014/05/19/seitamaa-hakkarainen-kvalitatiivinen-sisallon-analyysi/.

Shantz, A., M. Sayer, J. Byrne, and K. Dempsey-Brench. 2023. "Grand Challenges and the MBA." *Journal of Management Education* 47 (3): 292–323. https://doi.org/10.1177/10525629231154891.

Shapiro, E. R., and A. W. Carr. 2012. "An Introduction to Tavistock-Style Group Relations Conference Learning." *Organizational and Social Dynamics* 12 (1): 70–80. https://pep-web.org/browse/document/opus.012.0070a.

Thompson, J. 2022. "A Guide to Abductive Thematic Analysis." *The Qualitative Report* 27 (5): 1410–1421. https://doi.org/10.46743/2160-3715/2022.5340.

Vila-Henninger, L, C Dupuy, V Van Ingelgom, M Caprioli, F Teuber, D Pennetreau, M Bussi, and C Le Gall. 2024. "Abductive Coding: Theory Building and Qualitative (Re)Analysis." *Sociological Methods and Research* 53 (2): 968–1001. https://doi.org/10.1177/00491241211067508.

Webb, N. M., M. Ing, E. Burnheimer, N. C. Johnson, M. L. Franke, and J. Zimmerman. 2021. "Is There a Right Way? Productive Patterns of Interaction during Collaborative Problem Solving." *Education Sciences* 11 (5): 37–54. https://doi.org/10.3390/educsci11050214.

Wegge, J., and S. A. Haslem. 2013. "When Group Goal Setting Fails: The Impact of Task Difficulty and Supervisor Fairness." In *Creativity, Talent and Excellence*, edited by A. G. Tan, 165–184. Singapore: Springer. https://doi.org/10.1007/978-981-4021-93-7_12.

Wheelan, S. A. 2009. "Group Size, Group Development, and Group Productivity." *Small Group Research* 40 (2): 247–262. https://doi.org/10.1177/1046496408328703.

Wheelan, S. A., B. Davidson, and F. Tilin. 2003. "Group Development Across Time: Reality or Illusion?" *Small Group Research* 34 (2): 223–245. https://doi.org/10.1177/1046496403251608.

Wismath, S. L., and D. Orr. 2015. "Collaborative Learning in Problem Solving: A Case Study in Metacognitive Learning." *The Canadian Journal for the Scholarship of Teaching and Learning* 6 (3): article 10. https://doi.org/10.5206/cjsotl-rcacea.2015.3.10.

Wuestewald, T. 2016. "Adult Learning in Executive Development Programs." *Adult Learning* 27 (2): 68–75. https://doi.org/10.1177/1045159515602256.

Yang, X. A. 2023. "Historical Review of Collaborative Learning and Cooperative Learning." *TechTrends* 67 (4): 718–728. https://doi.org/10.1007/s11528-022-00823-9.

Zaharia, I. 2013. "On Didactic Management of Sociocognitive Conflict." *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development* 13 (1): 457–464. https://managementjournal.usamv.ro/pdf/vol.XIII/Art74.pdf.

Zhang, Z., T. Bekker, P. Markopoulos, and H. M. Skovbjerg. 2023. "Supporting and Understanding Students' Collaborative Reflection-in-Action During Design-Based Learning." *International Journal of Technology and Design Education* 34 (1): 307–343. https://doi.org/10.1007/s10798-023-09814-0.

Zhang, Y., and C. Chiu. 2012. "Goal Commitment and Alignment of Personal Goals Predict Group Identification Only When the Goals Are Shared." *Group Processes & Intergroup Relations* 15 (3): 425–437. https://doi.org/10.1177/1368430211415440.

Zhao, E. Y., S. M. B. Thatcher, and K. A. Jehn. 2019. "Instigating, Engaging in, and Managing Group Conflict: A Review of the Literature Addressing the Critical Role of the Leader in Group Conflict." *The Academy of Management Annals* 13 (1): 112–147. https://doi.org/10.5465/annals.2016.0153.