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Trust and conflict in online groups with faultlines: Results of an intervention to improve affect management.

The formation of confronted subgroups in a group can be harmful for collaboration. Thus, reducing the salience of in-subgroup and out-subgroup distinctions is crucial for reducing group conflict. The present study examines whether an online affective management intervention could be useful for reducing conflict and, subsequently, improving trust in online groups split into subgroups. The sample consisted of 208 undergraduate students (grouped into 52 four-person groups) that participated in a randomized pre-post design with a control group. Results showed that the affect management intervention increased group trust by reducing both task conflict and process conflict.

Keywords: affect management intervention; intragroup faultlines; task conflict; process conflict; group trust

Introduction

Organizations increasingly rely on groups to organize complex work in today's world (Salas et al., 2015). The nature of work has shifted from individual jobs to group-based work structures, which requires the integration of specialized knowledge and skills of

more than one individual to complete the tasks successfully (Kozlowski & Ilgen, 2006). Moreover, rapid technological advancements and globalization have made online groups gain importance. Particularly, the disruption caused by the COVID-19 pandemic has dramatically increased online collaboration (Gibson, 2020). Online groups consist of geographically dispersed people who collaborate using technology to achieve common goals (DeSanctis & Monge, 1999). Organizations benefit from having their most skilled and knowledgeable individuals working together in online groups, regardless of their location (Hoch & Kozlowski, 2014). Working in online groups requires employees to have the right skills to collaborate successfully in online settings (Ferrazzi, 2014). For this reason, educational programs in higher education emphasize the need to implement collaborative learning as an instructional method to help students improve their group-work skills (Curşeu et al., 2018).

Trust is critical to the success of different types of collaborations, such as online learning groups (Ennen et al., 2015), strategic alliances (Shakeri & Radfar, 2017), and disaster project management teams (McLaren & Loosemore, 2019). Trust is a psychological state that includes positive expectations about others' intentions and behaviors, as well as openness to being vulnerable in relationships (Rousseau et al., 1998). At the group level, trust reflects a shared climate among group members (Costa et al., 2009).

However, conflicts within a group can erode trust and create barriers to effective collaboration. According to de Wit et al. (2012), task conflict and process conflict are two types of conflicts that can have a negative impact on trust. Another factor that can contribute to task and process conflicts and make it difficult to build trust within a group is diversity faultlines. This occurs when multiple diversity characteristics align within a group, such as age, gender, race, or education level, (Lau & Murnighan, 1998).

Faultlines can lead to subgroup formation, which may result in conflicts and reduced collaboration.

In this context, interventions are critical in dealing with the potential detrimental effects of subgroups. We propose an intervention aimed at facilitating affect management among group members, which can help develop competencies in diversity and conflict management that are essential for computer-supported collaborative learning situations (Jeong et al., 2019). By providing training in affect management techniques, such as perspective-taking and emotion regulation, group members can learn to recognize and manage their own emotions and those of others, leading to increased empathy, reduced intergroup bias, and improved communication within the group (Mackwana et al, 2021). We expect that this intervention will decrease task and process conflicts in the group and increase trust among its members.

Diversity faultlines: Challenges and remedies for online groups

Online groups face unique challenges due to geographical dispersion and technology-mediated communication. These challenges can include increased diversity and greater difficulties in building strong emotional connections within the group. While diversity can be beneficial for creativity and innovation in groups (Cen et al., 2016), it can also lead to negative effects when various individual characteristics align, such as occupational role and gender (Thatcher & Patel, 2011). Based on social categorization, the alignment of multiple diversity characteristics in a group is likely to increase members' perception of similarities and differences among groupmates, leading to the formation of subgroups characterized by relative intra-group similarity and inter-group dissimilarity (Turner et al., 1987). As social categories become salient, groups with faultlines become more prone to divide into subgroups (Lau & Murnighan, 1998), creating “us vs. them” distinctions within the group. This phenomenon can lead to in-

group favoritism, or the tendency of individuals to favor in-group over out-group members (Hewstone et al., 2002).

However, research has identified several interventions that can mitigate these negative effects of subgroups such as cross-cutting and superordinate categorization (Rico et al., 2012), management of diversity beliefs (Homan et al., 2007), and self-disclosure (Chiu & Staples, 2013). Reducing the salience of in-group and out-group category distinctions is the key to preventing or mitigating the negative effects of subgroup formation (Gaertner et al., 2010). This can be achieved through creating a more inclusive superordinate in-group that incorporates separate groups or promoting personalized relationships with out-group members, which fosters the perception of them as individuals rather than mere group members. For instance, promoting a shared identity based on a common goal or shared values can reduce the salience of faultlines and enhance collaboration within the group, as demonstrated by Rico et al. (2012).

Diversity faultlines in group collaboration: Implications for task and process conflict and trust

Task conflict and process conflict are two types of conflicts that can arise within a group. We did not include relationship conflict because we were interested in examining conflicts that are more associated with task accomplishment-related issues, rather than interpersonal incompatibilities among group members. Moreover, task conflict and process conflict have been studied together less than task conflict and relationship conflict because research has emphasized the traditional distinctions between personal and work-related conflicts (Greer & Dannals, 2017). Task conflict arises from different viewpoints, whereas process conflict stems from differences in the processes used to accomplish tasks (Jehn & Mannix, 2001). The emergence of subgroups in online groups can exacerbate these conflicts by increasing negative affective responses to conflict

(Homan, 2019), which may lead to less favorable impressions of members in the out-subgroup and higher intragroup conflict (Bezrukova et al., 2007; Thatcher & Patel, 2012). The social categorization theoretical approach suggests that subgroups may polarize their views (Brewer, 1991; Hogg et al., 1990), leading to higher task conflict. In the case of process conflict, competitiveness between subgroups can deepen their divergent viewpoints, hindering the group from reaching a shared approach to process-related issues (Bezrukova et al., 2007).

Trust is an essential factor in group collaborations, particularly in technology-mediated environments (Jarvenpaa & Leidner, 1998). However, disagreements about task-related content and procedures among group members can be interpreted as signs of untrustworthiness, leading to feelings of mistrust and reducing the willingness of team members to collaborate and communicate openly, which ultimately can undermine trust (de Wit et al., 2012; Spreitzer & Mishra, 1999). This is especially evident if group members interpret other members' diverging viewpoints as reflecting a negative assessment of their abilities and skills (Greer & Jehn, 2007).

The present study

In the present study, we investigate whether an online affective management intervention could be useful for diminishing conflict in online groups split into subgroups, and subsequently increase group trust (Figure 1). Affect management can be considered a process where group members effectively manage their affect while performing tasks (Marks et al., 2001). It consists of emotion regulation techniques such as calming members down, increasing group morale and members' cohesiveness, and being empathic. By drawing group members' attention to others' affect and encouraging more positive communication, an affect management intervention could promote a more individuated impression of members of the other subgroup. If group members pay more

attention to the individual characteristics of other members (including members of another subgroup), depersonalization and evaluation based on social categories are less likely to occur (Gaertner et al., 2010). The attenuation of social category perceptions reduces boundaries between subgroups (Homan et al., 2007; Rico et al., 2012), and this may bring divergent viewpoints closer, resulting in less task conflict and process conflict. Moreover, the intervention is expected to keep disagreements between subgroup members from being interpreted as a source of untrustworthiness, leading to a more positive assessment of out-subgroup members. Therefore, we propose that an intervention to facilitate the members' affect management while performing tasks will help group members to focus on personal cues as a source of information about members of the subgroup, rather than category-based stereotypes, thus bringing members of the subgroups closer and improving group trust. Accordingly, we propose the following hypotheses:

Hypothesis 1. Task conflict will mediate the effect of an online intervention in affect management on group trust.

Hypothesis 2. Process conflict will mediate the effect of an online intervention in affect management on group trust.

--PLEASE, INSERT FIGURE 1 ABOUT HERE--

Materials and method

Participants

The sample was composed of 208 freshmen enrolled in organizational behavior courses in two Spanish universities. The mean age of the participants was 20.91 years ($SD = 5.31$). The sample contained 69.2% women ($N = 144$). Participants were allocated to

one of 52 groups of four students, but not completely randomly. The group composition was based on the students' home university (UV vs US) and their adventure profile (bold vs. thoughtful) in an effort to create the faultline. This information was gathered during the recruitment process. Thus, using these two characteristics, we randomly allocated either two bold UV students and two thoughtful US students or two thoughtful UV students and two bold US students to each group. After making up the groups, we randomly assigned them to the intervention or control condition. These groups were stable during the study. The students' participation was an alternative way to fulfill the requirements of the practical classes. They were not informed of the study objective or the composition of their groups. Therefore, they could not have any contact with other group members before the first session.

Procedure

This study employed a randomized pre-post design with a control group: 2 between subjects (affect management online intervention vs no intervention) $\times$ 3 within subjects (measurement time: session 1, session 2, and session 3). In the intervention condition, participants engaged in two training sessions held between the pre-intervention session (Session 1) and two post-intervention sessions (Sessions 2 and 3). Specifically, the content presented in the first session dealt with how to identify, express, and regulate emotions in online groups communicating via written online communication. In this communication medium, message timing is important to avoid delays in responses (e.g., a group member says s/he will need time to answer a question), which can lead to frustration (Panteli & Fineman, 2005) and affect the receiver's impression (e.g., an unresponsive partner is perceived as less credible; Kalman & Rafaeli, 2011). Emoticons strengthen the positive emotional content of verbal messages and expressions, such as greetings, gratitude, compliments, and positive appraisals, while buffering negative

content and speech acts that can be interpreted as authoritative by the receiver, such as petitions, corrections, rejections, and suggestions (Derks et al., 2008; Skovholt et al., 2014). Thus, we mainly focused on communication strategies involving paralanguage, time management, and the use of emoticons to strengthen or buffer emotions. In the second session, the content dealt with managing and regulating the affective work climate in online groups (i.e., strategies that can improve any situation, offering rewards in exchange for efforts, acknowledging others' contributions, providing support and motivation to achieve the group goal). Reappraisal strategies, encouraging the group by making positive comments about their progress and performance, or making supportive comments about group members' ideas and opinions can create a more positive group climate during the group's interactions (Elfenbein, 2007).

Participants practiced with the training contents individually and collectively in both sessions. While performing the individual exercises, participants acquired the content and practiced it individually through a set of exercises. In the collective exercises, the group interacted online and practiced together. In both sessions, the individual exercises had to be carried out on the online platform to guarantee that no group member could begin the collective exercises until the other group members had completed them on their own. To provide the same training contents to all the students, participants in the control condition engaged in the two training sessions after they completed the three non-intervention sessions: pre-intervention (Session 1); post-intervention (Session 2); post-intervention (Session 3); affect management intervention 1; and affect management intervention 2.

In each non-intervention session, the groups had to resolve an intellectual decision-making task (McGrath, 1984). We combined three "survival" tasks with digital storytelling. The three tasks were survival situations in which group members receive a

list of items and objects and have to put them in order according to their degree of usefulness for their survival (i.e., a forest fire, surviving in a bunker, and getting lost in the desert) (e.g., Human Synergistics, 2003). Task solutions are first reached on an individual basis, and later as a group, except for the first session, which was carried out in subgroups rather than individually. As we explain later, the goal was to strengthen the fragmentation into subgroups in the first session. These tasks have an optimal solution provided by experts as an objective result with which to compare individual and group rankings. We carried out a pilot study to test the time needed to solve the tasks and the tools employed on the software platform.

During the first session, the subgroups were formed by aligning the university of origin (UV vs US) and the adventure profile (bold vs. thoughtful). Participants were assigned to the specific adventure profile (bold vs. thoughtful) by means of a questionnaire that was filled out as a baseline measure for each participant. In it, the participants had to rate a list of adventure activities according to their preferences. Some activities were associated with a bold adventure profile that preferred risk (“James Bond” style), and others to a more thoughtful adventure profile (“Indiana Jones” style). We verified whether participants identified with the assigned adventure profile. Results showed that they identified more with the designated profile ($M = 4.39$; $SD = 1.22$) than with the alternative profile ($M = 3.95$; $SD = 1.34$) ($t_{(103)} = 2.39$; $p = .019$) in the case of the bold adventure profile. Participants also identified more with the designated profile ($M = 4.63$; $SD = 1.12$) than with the alternative profile ($M = 3.33$; $SD = 1.41$) ($t_{(103)} = 8.03$; $p < .001$) in the case of the thoughtful adventure profile. This group configuration was based on earlier laboratory studies that examined the effects of group faultlines (e.g., Homan et al., 2007; Rico et al., 2012).

Moreover, this group composition was highlighted by using a variety of elements (Rico et al., 2012). First, they were informed about their particular profile and the profiles of other members of the group through their descriptions in the welcome text before their interactions in groups. Second, the colors and logos of the universities and profiles could be seen throughout all the sessions. Third, a warm-up exercise was performed at the beginning of the first session, and it consisted of allocating resources awarded by the ministry to each university (UV vs US). Each subgroup played the role of their university, and they had to reach a group decision about the resource allocation, but without using 50% for each university. Fourth, in order to strengthen the fragmentation, the first part of the task in the first session was carried out in subgroups instead of individually. Moreover, we distributed the list of items and objects to put in order to solve the task between the subgroups, so that each subgroup had a different subset of elements. In the second part of the task, in groups, they had to reach a consensus about the list of items and objects, based on their usefulness for survival. Similar procedures have been found to be effective in activating intergroup discrimination in the context of minimal group experiments. According to this paradigm, arbitrary distinctions between the members of a group (e.g., preference for paintings or the toss of a coin) are sufficient to activate intergroup discrimination on resource allocation tasks, even when the participants are strangers (Otten, 2016).

The participants received brief instructions in the use of this technology before starting the experiment. They also read and signed a consent form indicating that they agreed with the days and times the group sessions would be held. This form was prepared following the instructions of the University ethics committee.

In sum, groups met in five sessions during about a one-month period. Two of the five sessions were used for the intervention. The groups interacted using synchronous

computer communication in an ad hoc electronic platform that offered them the possibility of using different applications: viewing videos and documents (in a synchronized manner), responding to group documents, participating in a chat with emojis, organizing the task information, and completing online questionnaires.

Measures

To test the indirect effects of the online intervention in affect management on group trust through task conflict (hypothesis 1) and process conflict (hypothesis 2), the mediating and dependent variables were analyzed in different sessions. Thus, task and process conflict measured in session 2 and group trust measured in session 3 were analyzed. The baseline measurement of group trust was controlled.

Task conflict.

It was measured with three items from Jehn and Mannix (2001). An example item is: “How much conflict about ideas is there in your group?” The items were rated on a 5-point Likert-type scale ranging from 1 not at all to 5 a lot. The Cronbach’s alpha for this scale was .76. Moreover, we aggregated individual questionnaire responses at the group level to obtain the group score. Within-group agreement was assessed with the $r_{WG(J)}$ index. The mean of the $r_{WG(J)}$ was 0.78 ($SD = 0.16$). The intraclass correlation coefficient or $ICC_{(I)}$ was .18. These values fall within the range of typical values encountered in applied research, ranging from .05 to .20 (Bliese, 2000).

Process conflict.

It was measured with three items from Jehn and Mannix (2001). An example item is:

“How often are there disagreements about who should do what in your group?” The items were rated on a 5-point Likert-type scale ranging from 1 not at all to 5 a lot. Cronbach’s alpha for this scale was .87. The mean of the $r_{WG(J)}$ was 0.83 ($SD = 0.22$) and $ICC_{(I)}$ was .12.

Group trust.

It was measured with five items from Haines (2014). An example item is: “I can rely on my other group members to accomplish what is expected of them”. The items were rated on a 6-point Likert-type scale ranging from 1 strongly disagree to 6 strongly agree. Cronbach’s alphas for this scale were .94, and .96 for baseline and Session 3, respectively. The mean of the $r_{WG(J)}$ was 0.87 ($SD = 0.23$) and 0.89 ($SD = 0.21$) for baseline and Session 3, respectively. Moreover, $ICC_{(I)}$ was .08, and .03 for baseline and Session 3, respectively.

Results

Manipulation check

We used 10 items to check the manipulation of affect management. An example item is: “In my group, we have used emojis to share our emotions.” The response scale ranged from 1 not at all to 4 very much. The Cronbach’s alphas were .81, .87, and .89 for Session 1, Session 2, and Session 3, respectively. Because individuals worked in groups, data were aggregated to the group level to control for non-independent individual observations (Bliese, 2000). The mean of the $r_{WG(J)}$ was 0.85 ($SD = 0.11$), 0.84 ($SD = 0.12$), and 0.82 ($SD = 0.16$) for Session 1, Session 2, and Session 3, respectively; $ICC_{(I)}$ was .22, .37, and .38 for Session 1, Session 2, and Session 3, respectively. Based on these results, aggregation of data to the group level was justified.

Results of the manipulation check showed that groups in the intervention condition used affect management strategies with their groupmates ($M = 2.84$, $SD = 0.47$) more often than in the control condition ($M = 2.55$, $SD = 0.43$) in Session 2 ($t_{(50)} = 2.33$, $p = .024$). We found a similar pattern of results in Session 3 (intervention: $M = 3.03$, $SD = 0.49$; control condition: $M = 2.57$, $SD = 0.40$; $t_{(50)} = 3.73$, $p < .001$). In Session 1 preintervention session), no significant differences were found between conditions (intervention: $M = 2.45$, $SD = 0.34$; control condition: $M = 2.59$, $SD = 0.38$; $t_{(50)} = -1.40$, $p = 0.168$). Therefore, these results showed that this manipulation had the desired effect.

Statistical analysis

The means, standard deviations, and Pearson correlations are provided in Table 1. Pearson correlations showed that task conflict positively correlated with process conflict. Moreover, both task conflict and process conflict negatively correlated with group trust. Affect management intervention correlated negatively with both task conflict and process conflict.

--PLEASE, INSERT TABLE 1 ABOUT HERE--

We ran a confirmatory factor analysis (CFA) with Mplus 7.4 to check for common method bias in the variables measured with self-reports. The fit of the three-factor model (items load in three different factors: task conflict, process conflict, and group trust) was compared to the fit of an alternative one-factor model (all items load in a single factor). We used robust weighted least squares as the estimation method (WLSMV) because it is recommended for items measured in an ordinal scale. Additionally, the goodness-of-fit of the models was assessed using the following cut-off criteria: comparative fit index (CFI) and Tucker-Lewis Index (TLI) greater than 0.95,

and root mean squared error of approximation (RMSEA) of 0.06 or less (Hu & Bentler, 1999).

The goodness-of-fit of the hypothesized three-factor model ($\chi^2=62.55$; $df=41$; $p < .05$; CFI = .998; TLI = .998; RMSEA = .05) was better than the alternative one-factor model ($\chi^2=421.62$; $df=44$; $p < .001$; CFI = .971; TLI = .963; RMSEA = .203). Moreover, the chi-square difference test for WLSMV in Mplus revealed that the three-factor model fitted significantly better than the alternative one-factor model ($\Delta\chi^2=115.21$; $df=3$; $p < .001$). All the factor-loading estimates of the items in their respective factors were significantly different from zero at $p < .001$ level. The standardized factor loadings of the items ranged from .68 to .82 for task conflict, from .86 to .95 for process conflict, and from .92 to .97 for group trust. The correlation between task conflict and process conflict was .70, between task conflict and group trust -.59, and between process conflict and group trust -.57. All these correlations were statistically significant at $p < .001$. Thus, we can conclude that the three-factor model is supported by the data and items from the three constructs measured three discriminable correlated factors: task conflict, process conflict, and group trust. According to this result, common method bias is not a threat to the analysis performed to test the hypotheses of this study.

To test the indirect effects of the online intervention in affect management on group trust through task conflict (hypothesis 1) and process conflict (hypothesis 2), multiple mediation analysis was performed using the macro PROCESS for SPSS v3.5. PROCESS allows us to generate bootstrap confidence intervals to make statistical inferences about the indirect effect (10,000 bootstrap samples drawn from the sample of this study). In addition, because the affect management intervention was a dichotomous variable, a dummy variable was created and entered in the regression equations (groups

in the intervention condition were assigned a score of one, and groups in the control condition were assigned a score of zero).

The statistical analysis showed that the online affect management intervention reduced task conflict ($B = -0.43$; $p < .01$) and process conflict ($B = -0.35$; $p < .01$). Moreover, task conflict ($B = -0.26$; $p < .05$) and process conflict ($B = -0.36$; $p < .05$) negatively influenced group trust (Table 2). Bootstrap analysis showed that the indirect effect of the online affect management intervention on group trust through task conflict was statistically significant (estimate of the product term = 0.13; 95% confidence interval = 0.01 to 0.29), thus supporting hypothesis 1. Likewise, the indirect effect of the online affect management intervention on group trust through process conflict was statistically significant (estimate of the product term = 0.14; 95% confidence interval = 0.01 to 0.30), thus supporting hypothesis 2. Moreover, there were no significant differences between the two indirect effects (estimate = - 0.01; 95% confidence interval = -0.23 to 0.23). This result indicates that they have the same magnitude. Furthermore, the direct effect of the intervention on group trust was not statistically significant ($B = -0.14$; $p = .21$), which indicates complete mediation of both task conflict and process conflict. In sum, the online affect management intervention increased group trust by reducing both types of conflict.

--PLEASE, INSERT TABLE 2 ABOUT HERE--

Discussion

The present study aimed to analyze the effect of an online affect management intervention on group trust through task conflict and process conflict in online groups split into subgroups. Our findings showed that the intervention indirectly affected groups' trust through both task conflict and process conflict; that is, the intervention reduced both types of conflict, which subsequently increased group trust. Thus,

Hypotheses 1 and 2 were supported by the data. Both types of conflict mediated this relationship in parallel, without significant differences between their mediated effects. Moreover, our results showed full mediation because the direct effect of the intervention on group trust was not statistically significant after controlling for the influence of task conflict and process conflict.

Examining the mediation in more detail, we found that the intervention reduced task conflict and process conflict in online groups with subgroup formation. In comparison with the control condition, online groups in the intervention condition reported lower levels of both types of conflict. This result points out that our intervention prevents the escalation of the intragroup conflict that occurs when a group is split into subgroups (Bezrukova et al., 2007; Thatcher & Patel, 2012). When subgroups are formed, the desire for distinctiveness from the out-subgroup leads individuals to distinguish their views from those of the other subgroup (Brewer, 1991; Hogg et al., 1990). However, affect management brings individuals to a situation where they can gain personal knowledge from out-subgroup members by dealing with their own affective reactions. Affect management promotes personalization and evaluation based on inter-individual differences, enhancing the perception of the out-subgroup as individuals rather than members of a social category (Gaertner et al., 2010). As a result, affect management may help to reduce disagreements about task-related content (task conflict) or task accomplishment procedures (process conflict) based on subgroup affiliations.

We also found that disagreements about task-related content (task conflict) and ways of proceeding to accomplish the task (process conflict) are negatively related to group trust (de Wit et al., 2012). In the present study, this result indicates that, in a context of inter-subgroup dynamics, both task conflict and process conflict may lead

individuals to make negative assessments of others' trustworthiness, especially about members of the out-subgroup.

In sum, first, our findings further support the importance of affect management in reducing intragroup conflict that can be the result of the formation of subgroups in online groups (Bezrukova et al., 2007; Thatcher and Patel, 2012). Second, the present study contributes to previous research by examining an intervention to improve affect management in online collaborative contexts based on key findings about online written communication (e.g., Derks et al., 2008; Kalman and Rafaeli, 2011). Third, this study pays attention to social psychological processes that can arise when the alignment of multiple individual characteristics divides the group into relatively homogeneous subgroups. This issue has important implications when online groups are used to develop students' group work skills in higher education. Fourth, we studied trust as an aggregated attribute of the group and examined how it is affected by task conflict and process conflict in online groups, contributing to previous research on intragroup conflict (Greer and Dannals, 2017; de Wit et al., 2012). Finally, the most important theoretical contribution of this study is in the field of intergroup bias reduction research (Gaertner et al., 2010). After providing an affect management intervention to online groups, our study reveals that by drawing attention to others' affect and encouraging more positive communication, group members separated into different subgroups were able to create the proper conditions (e.g., reducing intragroup conflict) to improve group trust.

Practical implications

From an instructor's perspective, our results can be used to inform the design and implementation of training sessions to improve the skills of students to manage affect in online collaboration in higher education institutions. This can be carried out

through a web-based platform as we did in our study, although other collaborative technologies may also be useful. The advantage of online training is that students have access to the instruction contents anytime and anywhere. Using tools like this, students can easily schedule their study and practice individually and collectively. Moreover, students may have problems to prevent subgroup formation because online groups bring together diverse individuals. Thus, instructors could implement an online affect management intervention as a strategy to enable online groups to deal with the detrimental consequences of subgroup formation while improving group trust. In sum, this intervention may help students to develop competencies to manage diversity and conflicts that can arise during group work in computer-supported collaborative learning situations (Jeong et al., 2019).

The practical implications of our findings can also be extrapolated to organization management. A short online training program can be provided to employees when working with their collaborators through computer-mediated communication tools (e.g., Skype, Zoom, Blackboard Collaborate), thus reducing travel costs. Members can learn and practice affect management skills, first individually and then collaboratively with other coworkers, at their own pace and without disrupting their workday. In newly created online groups, it can be quite useful to promote initial trust among group members and prevent conflict escalation, which is usually triggered by misunderstandings and reduced communication. In the early stage of online group formation, kick-off meetings are held so that members can get acquainted with each other, clarify the group goals, describe the roles and functions of the members, or develop general rules for the groupwork (Hertel et al., 2005). Affect management training should include these kick-off meetings to improve communication strategies on how to identify, express, and regulate emotions or create a more positive group climate

in online groups. Finally, global online groups usually experience difficulties with knowledge sharing because identity threats emerge across subgroups (Eisenberg & Mattarelli, 2017). Affect management training can be a tool for building bridges between members from different subgroups and reducing the negative impact of the emergence of subgroups.

Limitations and implications for future research

The first limitation of this study is that we have only focused on electronic text-based communication, although online groups in higher education can use other types of communication technologies or collaborative technologies, which can influence the collaboration process. Thus, this research should be replicated in groups that use different types of collaborative technologies to examine whether the effect of the affect management intervention is confirmed. Second, based on past research (e.g., Homan et al., 2007; Rico et al., 2012), we have studied the effect of our affect management intervention under constant faultline strength conditions. However, future research should study whether faultline strength (i.e., strong vs. weak faultlines) interacts with the effect of an affect management intervention. Finally, our findings are based on students from higher education, but they can be extended to other education levels such as secondary education. As diversity in schools increases, the development of social and emotional management skills may be beneficial for students when interacting with members of other ethnic and religious groups. To increase the external validity of our results, this research should also be conducted in organizational contexts.

References

Bezrukova, K., Thatcher, S. M. B., & Jehn, K. A. (2007). Group heterogeneity and faultlines: Comparing alignment and dispersion theories of group composition.

In K. J. Behfar & L. L. Thompson (Eds.), *Conflict in organizational groups: New directions in theory and practice* (pp. 57–92). The Northwestern University Press.

- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In S. W. J. Kozlowsky & K. J. Klein (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). Jossey-Bass/Pfeiffer.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17(5), 475–482.
<https://doi.org/10.1177/0146167291175001>
- Cen, L., Ruta, D., Powell, L. Hirsch, B., & Ng, J. (2016). Quantitative approach to collaborative learning: performance prediction, individual assessment, and group composition. *International Journal of Computer-Supported Collaborative Learning*, 11, 187–225. <https://doi.org/10.1007/s11412-016-9234-6>
- Chiu, Y.-T., & Staples, D. S. (2013). Reducing faultlines in geographically dispersed teams: Self-disclosure and task elaboration. *Small Group Research*, 44 (5), 498–531. <https://doi.org/10.1177/1046496413489735>
- Costa, A. C., Bijlsma-Frankema, K., & De Jong, B. (2009). The role of social capital on trust development and dynamics: Implications for cooperation, monitoring and performance. *Social Science Information*, 48, 199–228.
<https://doi.org/10.1177/0539018409102408>
- Curşeu, P. L., Chappin, M. M. H., & Jansen, R. J. G. (2018). Gender diversity and motivation in collaborative learning groups: the mediating role of group discussion quality. *Social Psychology of Education*, 21, 289–302.
<https://doi.org/10.1007/s11218-017-9419-5>
- de Wit, F. R. C., Greer, L. L., & Jehn, K. A. (2012). The paradox of intragroup conflict: A meta-analysis. *Journal of Applied Psychology*, 97(2), 360–390.
<https://doi.org/10.1037/a0024844>
- Derks, D., Bos, A. E. R., & von Grumbkow, J. (2008). Emoticons and online message interpretation. *Social Science Computer Review*, 26(3), 379–388.
<https://doi.org/10.1177/0894439307311611>

- DeSanctis, G., & Monge, P. (1999). Introduction to the special issue: Communication processes for virtual organizations. *Organization Science*, 10(6), 693–703. <https://doi.org/10.1287/orsc.10.6.693>
- Eisenberg, J., & Mattarelli, E. (2017). Building bridges in global virtual teams: The role of multicultural brokers in overcoming the negative effects of identity threats on knowledge sharing across subgroups. *Journal of International Management*, 23(4), 399–411. <https://doi.org/10.1016/j.intman.2016.11.007>
- Elfenbein, H. A. (2007). Emotion in organizations. *The Academy of Management Annals*, 1(1), 315–386. <https://doi.org/10.1080/078559812>
- Ennen, N. L., Stark, E., & Lassiter, A. (2015). The importance of trust for satisfaction, motivation, and academic performance in student learning groups. *Social Psychology of Education*, 18, 615–633. <https://doi.org/10.1007/s11218-015-9306-x>
- Ferrazzi, K. (2014). Managing yourself getting virtual teams right. *Harvard Business Review*, 92, 120–123
- Gaertner, S. L., Dovidio, J. F., & Houlette, M. A. (2010). Social categorization. In J. F. Dovidio, M. Hewstone, P. Glick, & V. M. Esses (Eds.), *The Sage handbook of prejudice, stereotyping and discrimination* (pp. 526–543). Sage.
- Gibson, C. (2020). From “Social Distancing” to “Care in Connecting”: An emerging organizational research agenda for turbulent times. *Academy of Management Discoveries*, 6, 165–169. <https://doi.org/10.5465/amd.2020.0062>
- Greer, L. L., & Dannals, J. E. (2017). Conflict in teams. In E. Salas, R. Rico, & J. Passmore (Eds.), *The Wiley Blackwell Handbook of the psychology of team working and collaborative processes* (pp. 317–343). Wiley-Blackwell. <https://doi.org/10.1002/9781118909997>
- Greer, L. L., & Jehn, K. A. (2007). The pivotal role of negative affect in understanding the effects of process conflict on group performance. In E. A. Mannix, M. A. Neale, & C. Anderson (Eds.), *Research on managing groups and teams* (Vol. 10, pp. 23–45). JAI.
- Haines, R. (2014). Group development in virtual teams: An experimental re-examination. *Computers in Human Behavior*, 39, 213–222. <https://doi.org/10.1016/j.chb.2014.07.019>

- Hertel, G., Geister, S., & Konradt, U. (2005). Managing virtual teams: A review of current empirical research. *Human Resource Management Review*, 15, 69–95. <https://doi.org/10.1016/j.hrmr.2005.01.002>
- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology*, 53, 575-604. <https://doi.org/10.1146/annurev.psych.53.100901.135109>
- Hoch, J. E., & Kozlowski, S. W. J. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, 99(3), 390–403. <https://doi.org/10.1037/a0030264>
- Hogg, M. A., Turner, J. C., & Davidson, B. (1990). Polarized norms and social frames of reference: A test of self-categorization theory of group polarization. *Basic and Applied Social Psychology*, 11, 77–100. 1 https://doi.org/.1207/s15324834baso1101_6
- Homan, A. C. (2019). Dealing with diversity in workgroups: Preventing problems and promoting potential. *Social and Personality Psychology Encompass*, 13, e12465. <https://doi.org/10.1111/spc3.12465>
- Homan, A. C., van Knippenberg, D., van Kleef, G. A., & De Dreu, C. K. W. (2007). Bridging faultlines by valuing diversity: Diversity beliefs, information elaboration, and performance in diverse work groups. *Journal of Applied Psychology*, 92(5), 1189–1199. <https://doi.org/10.1037/0021-9010.92.5.1189>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Human Synergistics. (2003). *Bushfire survival situationTM leaders guide*. Human Synergistics International.
- Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, 10 (6), 791–815. <https://doi.org/10.1287/orsc.10.6.791>
- Jehn, K., & Mannix, E. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of Management Journal*, 44(2), 238–251. <https://doi.org/10.2307/3069453>
- Jeong, H., Hmelo-Silver, C. E., & Jo, K. (2019). Ten years of computer-supported collaborative learning: A meta-analysis of CSCL in STEM education during

- 2005–2014. *Educational Research Review*, 28, 100284.
<https://doi.org/10.1016/j.edurev.2019.100284>
- Kalman, Y. M., & Rafaeli, S. (2011). Online pauses and silence: Chronemic expectancy violations in written computer-mediated communication. *Communication Research*, 38(1), 54–69. <https://doi.org/10.1177/0093650210378229>
- Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, 7, 77–124.
<https://doi.org/10.1111/j.1529-1006.2006.00030.x>
- Lau, D. C., & Murnighan, J. K. (1998). Demographic diversity and faultlines: The compositional dynamics of organizational groups. *Academy of Management*, 23(2), 325–341. <https://doi.org/10.5465/AMR.1998.533229>
- Makwana, A. P., Dhont, K., García-Sancho, E., & Fernández-Berrocal, P. (2021) Are emotionally intelligent people less prejudiced? The importance of emotion management skills for outgroup attitudes. *Journal of Applied Social Psychology*, 51, 779– 792. <https://doi.org/10.1111/jasp.12798>
- Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, 26(3), 356–376. <https://doi.org/10.2307/259182>
- McGrath, J. E. (1984). *Groups: Interaction and performance*. Prentice-Hall.
- McLaren, M., & Loosemore, M. (2019). Swift trust formation in multi-national disaster project management teams. *International Journal of Project Management*, 37(8), 979-988. <https://doi.org/10.1016/j.ijproman.2019.09.003>.
- Otten, S. (2016). The Minimal Group Paradigm and its maximal impact in research on social categorization. *Current Opinion in Psychology*, 11, 85-89.
<https://doi.org/10.1016/j.copsyc.2016.06.010>
- Panteli, N., & Fineman, S. (2005). The sound of silence: The case of virtual team organizing. *Behaviour & Information Technology*, 24(5), 347–352.
<https://doi.org/10.1080/01449290512331335618>
- Rico, R., Sanchez-Manzanares, M., Antino, M., & Lau, D. (2012). Bridging team faultlines by combining task role assignment and goal structure strategies. *Journal of Applied Psychology*, 97(2), 407–420.
<https://doi.org/10.1037/a0025231>

- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-disciplinary view of trust. *Academy of Management Review*, 23, 393–404. <https://doi.org/10.5465/amr.1998.926617>
- Salas, E., Shuffler, M. L., Thayer, A. L., Bedwell, W. L., & Lazzara, E. H. (2015). Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide. *Human Resource Management*, 54, 599-622. <https://doi.org/10.1002/hrm.21628>
- Shakeri, R., & Radfar, R. (2017). Antecedents of strategic alliances performance in biopharmaceutical industry: A comprehensive model. *Technological Forecasting and Social Change*, 122, 289-302. <https://doi.org/10.1016/j.techfore.2016.01.003>.
- Skovholt, K., Grønning, A., & Kankaanranta, A. (2014). The communicative functions of emoticons in workplace e-mails: :-). *Journal of Computer-Mediated Communication*, 19(4), 780–797. <https://doi.org/10.1111/jcc4.12063>
- Spreitzer, G. M., & Mishra, A. K. (1999). Giving up control without losing control: Trust and its substitutes' effects on managers' involving employees in decision making. *Group and Organization Management*, 24, 155–187. <https://doi.org/10.1177/1059601199242003>
- Thatcher, S. M. B., & Patel, P. C. (2011). Demographic faultlines: A meta-analysis of the literature. *Journal of Applied Psychology*, 96(6), 1119-1139. <https://doi.org/10.1037/a0024167>
- Thatcher, S. M. B., & Patel, P. C. (2012). Group faultlines: A review, integration, and guide to future research. *Journal of Management*, 38(4), 969–1009. <https://doi.org/10.1177/0149206311426187>
- Turner, J., Hogg, M., Oakes, P., Reicher, S., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Blackwell

Figure 1. Research model.