UNDERSTANDING CONFLICT MANAGEMENT AND COLLABORATIVE EFFICACY IN UNDERGRADUATE RESEARCH GROUPS: A SEQUENTIAL EXPLANATORY MIXED METHODS STUDY

HYACINTH PACTOL[1], KAREN T. MALALIS[2], JESSIE CANDAWAN[3], JOANNE CATUGAL[4]
DAVE A. DUHAYLUNGSOD[5], VINCENT ISIDORE LAGANG[6], AL-VINCENT MAGHANOY[7]
CHRISTINE DELOS REYES[8], STEVE I. EMBANG[9], JULIE MAR M. REGIS[10]
[1-10]Northwestern Mindanao State College of Science and Technology
Volume 10, Issue No.2

ABSTRACT

This study employed a sequential explanatory mixed-methods design to examine the relationship between collaborative efficacy and conflict management effectiveness among undergraduate research groups. In the first phase, quantitative data were collected through a census of 843 students engaged in thesis, capstone, or group research projects across academic disciplines at a state college in Northern Mindanao. Descriptive and inferential analyses revealed that collaborative efficacy and conflict resolution strategies were practiced to a great extent, with collaborating identified as the most dominant style. Regression analysis confirmed that collaborative efficacy significantly predicts conflict management effectiveness, highlighting its critical role in shaping constructive conflict behaviors. Building on these results, the second phase utilized qualitative methods, including in-depth interviews and focus group discussions, to explore the dynamics underpinning this relationship. Data were analyzed using Colaizzi's phenomenological approach, generating four themes: Fragility of Trust, Communication as a Double-Edged Sword, Cohesion Through Shared Responsibility, and Conflict as a Catalyst for Growth. These findings provided deeper insight into how trust, communication quality, and shared accountability mediate the operationalization of collaborative efficacy in conflict resolution contexts. The integration of quantitative and qualitative findings highlights the importance of incorporating structured interventions—such as team-based learning strategies, conflict management training, and reflective practices—into higher education curricula to enhance collaboration and adaptability among student research groups.

Keywords: sequential explanatory design, collaborative efficacy, conflict management, research group dynamics, higher education

1.0 INTRODUCTION

Collaborative research has become a cornerstone of undergraduate education, offering students invaluable exposure to the processes of academic inquiry, critical thinking, and scholarly communication (Johnson & Johnson, 2019). Within this pedagogical framework, student research groups serve not only as vehicles for intellectual discovery but also as arenas for developing essential soft skills, including leadership, negotiation, and cooperation. These collaborative arrangements have been shown to enhance student engagement, foster resilience in problem-solving, and deepen disciplinary learning through peer-to-peer interaction (Oakley et al., 2021). Given the increasing emphasis on research-based learning in state colleges and public higher education institutions, collaborating effectively has become a vital competency in preparing undergraduates for both academic progression and the demands of the modern workforce.

However, despite the many pedagogical benefits of group-based inquiry, research collaborations among undergraduates are not immune to conflict. Disagreements stemming from divergent personalities, unequal participation, misaligned expectations, or ineffective communication frequently emerge (Rahim, 2021). If left unresolved, such conflicts can compromise not only the cohesion of the research group but also the overall quality and timeliness of the scholarly work produced (Tjosvold, 2023). These interpersonal dynamics are particularly salient in state colleges, where heterogeneity in academic preparation, socioeconomic background, and cultural identity is often pronounced. In these contexts, managing group conflict constructively becomes not just a peripheral skill but a central factor in achieving successful research outcomes.

While the literature on group dynamics and conflict resolution is well-developed, particularly in organizational and professional settings, less attention has been paid to the specific micro-dynamics of conflict management within undergraduate research teams (De Dreu & Gelfand, 2021). Existing studies have generally focused on broader constructs such as leadership effectiveness (Hackman & Wageman, 2005), emotional intelligence (Mayer et al., 2016), or communication strategies (Jehn & Mannix, 2001), leaving a conceptual gap regarding the internal psychological mechanisms that sustain effective collaboration in educational contexts.

In particular, the role of collaborative efficacy—defined as the shared belief among group members in their collective capacity to organize and execute actions required to achieve group goals—remains underexplored in conflict resolution in student research teams (Salas et al., 2023). Although collaborative efficacy strengthens team effectiveness by promoting coordinated efforts and enhancing collaboration, which enables great-

er cohesion, improved task performance, and shared accountability in both corporate and educational environments (Elms et al., 2022), its potential to buffer conflict or influence the choice of resolution strategies within undergraduate academic groups is largely unexamined. This oversight is especially relevant for institutions where student research is often undertaken with limited institutional support and minimal faculty supervision, intensifying the stakes of effective group self-management.

This study seeks to address this empirical and theoretical lacuna by investigating the intersection of collaborative efficacy and conflict management strategies within undergraduate research groups in a state college context. Employing an explanatory sequential design, the research first gathers quantitative data to assess levels of collaborative efficacy and preferred conflict resolution styles among student researchers. This is followed by a qualitative inquiry to contextualize and deepen the understanding of these dynamics through interviews and focus groups.

The primary aim of the study is to elucidate how students' shared beliefs about their group's collaborative capacity influence their ability to navigate interpersonal conflict. The study intends to uncover mechanisms that either facilitate or inhibit effective collaboration in academic projects. The findings are expected to generate actionable insights for faculty mentors, research coordinators, and academic policymakers interested in promoting sustainable research cultures within undergraduate programs. Moreover, this research may contribute to the theoretical development of collaborative efficacy as a construct with implications not only for performance but also for intragroup harmony and resilience in academic settings.

2.0 Theoretical and Conceptual Framework

This study is anchored on three interrelated theories that explain how conflict is experienced and managed within undergraduate research groups: the Thomas-Kilmann Conflict Mode Instrument (TKI), Social Interdependence Theory (SIT), and the construct of collaborative efficacy.

The Thomas-Kilmann Conflict Mode Instrument (Thomas & Kilmann, 1974) identifies five conflict-handling styles—competing, collaborating, compromising, avoiding, and accommodating—based on the degree of assertiveness and cooperativeness. Understanding these styles enables student researchers to assess their tendencies and adopt more constructive strategies during interpersonal conflicts (Jehn & Mannix, 2001).

Complementing this is the Social Interdependence Theory, which posits that the way goals are structured—positively or negatively—affects interaction and outcomes (Deutsch, 1949; Johnson & Johnson, 1989). In research teams, positive

interdependence encourages cooperation, shared responsibility, and constructive problem-solving, while negative interdependence may foster competition and conflict escalation (Tjosvold, 2008).

Lastly, the concept of collaborative efficacy—derived from Bandura's (1997) social cognitive theory—refers to a group's shared belief in its capacity to work effectively. High collaborative efficacy has been linked to improved teamwork, resilience, and conflict resolution in academic settings (Gully et al., 2002; Lent et al., 2008).

Research Questions

1. What is the level of collaborative efficacy among undergraduate research groups in a state college?
2. To what extent do undergraduate research groups employ different conflict resolution styles when managing disagreements?
3. How does collaborative efficacy predict conflict management effectiveness among undergraduate research groups?
4. How do students describe the dynamics of trust, communication, and group cohesion in the context of managing conflict in their research groups?
5. How do the qualitative findings explain or expand upon the quantitative results regarding the relationship between collaborative efficacy and conflict management?

3.0 Method

Research Design

This study employed an explanatory sequential mixed methods design, a two-phase approach that prioritizes quantitative data collection and analysis followed by qualitative inquiry to elaborate upon initial findings (Creswell & Clark, 2018). This design is particularly effective when the objective is to first establish empirical patterns through measurable variables and subsequently gain deeper insight into the underlying processes and contextual nuances that shape those patterns (Ivankova, Creswell & Stick, 2006). The rationale for this methodology lies in its ability to combine the generalizability of quantitative methods with the depth and contextual richness of qualitative exploration (Tashakkori & Teddlie, 2010), which is essential for a comprehensive understanding of collaborative efficacy and conflict management in student research groups.

Participants and Sampling Procedure

Quantitative Phase

The first phase of the study involved all undergraduate students who were actively engaged in thesis, capstone, or group research projects at a state college in Northern Mindanao during the data collection period. A census sampling approach was utilized to ensure complete coverage of the population of interest, allowing every eligible student to participate.

This method was chosen to capture a comprehensive representation of research group dynamics across different academic programs—such as education, engineering, agriculture, and business—and year levels, thereby minimizing sampling bias (Fraenkel et al., 2019). In total, 843 students participated in the study.

Qualitative Phase

In the second phase, purposeful sampling (Patton, 2015) was used to select a subset of approximately 12–15 participants from the original quantitative sample. Selection was guided by maximum variation sampling, wherein individuals representing high, moderate, and low levels of perceived collaborative efficacy (as measured in the survey) were included to provide contrasting perspectives (Miles, Huberman, & Saldaña, 2014). This phase included focus group discussions (FGDs) and individual semi-structured interviews to explore in-depth experiences with conflict and collaboration.

Instrumentation

Quantitative Instruments

A structured questionnaire was developed, drawing upon validated scales from previous studies. The instrument consisted of three main sections: Demographic Profile: Age, gender, academic program, year level, and research group size. Collaborative Efficacy Scale: Adapted from Lindsley, Brass, and Thomas (1995) and validated by Salas et al. (2023), this scale included items such as "My group can overcome challenges by working together," rated on a 4-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree). Cronbach's alpha reliability in the pilot test was 0.87.

Conflict Management Style Inventory: Based on Rahim's Organizational Conflict Inventory-II (ROCI-II) (Rahim, 2011), measuring five conflict resolution strategies: avoidance, accommodation, competition, compromise, and collaboration. The adapted version included 20 items rated on a 4-point Likert scale, with a pilot-tested internal consistency of 0.85.

Qualitative Instruments

A semi-structured interview guide was developed to explore the context, nature, and resolution of conflict within groups. The guide was validated by two research methodology experts and piloted with three non-participant students to ensure clarity and relevance.

Data Collection Procedures

Phase One: Quantitative

Data were collected using a dual-method approach, incorporating both online and paper-based surveys over three weeks. Students were recruited through academic coordinators and classroom visits. Surveys were administered anonymously, and ethical compliance was ensured by securing institutional research ethics approval. Participation was volun-

tary, with informed consent forms signed before survey completion.

Phase Two: Qualitative

Participants selected for interviews and FGDs were contacted via email and invited to participate in the second phase. Sessions were conducted either face-to-face or via secure video conferencing platforms, depending on participant availability and public health protocols. Interviews lasted approximately 45–60 minutes and were audio-recorded with participant consent. FGDs were facilitated by the lead researcher with assistance from a trained moderator to encourage open discussion.

Data Analysis

Quantitative Analysis

Survey responses were encoded and analyzed using SPSS v27. Descriptive statistics (means, standard deviations, and frequencies) were computed to profile respondents and summarize responses. To examine relationships between collaborative efficacy and conflict resolution strategies, Pearson's correlation coefficients were calculated. Furthermore, multiple regression analysis was employed to determine the predictive power of collaborative efficacy on the preferred conflict management strategy, controlling for demographic variables (Field, 2018).

Qualitative Analysis

The interview transcripts were analyzed using thematic analysis guided by Colaizzi's descriptive phenomenological method (Colaizzi, 1978). This approach involved extracting significant statements, formulating meanings, and clustering these into themes to capture the essence of participants' experiences. To enhance trustworthiness, data triangulation across interviews and focus group discussions was applied, and member checking was conducted by returning thematic summaries to participants for validation, ensuring credibility and accuracy of interpretations (Lincoln & Guba, 1985).

Trustworthiness and Rigor

To ensure validity and reliability, the study incorporated methodological triangulation, peer debriefing, and audit trails (Shenton, 2004). Quantitative reliability was assessed through Cronbach's alpha, while qualitative credibility was strengthened through thick description, prolonged engagement, and reflexive journaling by the researcher. Transferability was addressed by providing detailed contextual descriptions to aid in the in-

terpretation of findings beyond the immediate research setting.

Ethical Considerations

All procedures conformed to the ethical standards set forth by the Institutional Review Board. Participants were informed of the purpose, procedures, potential risks, and benefits of the study. Confidentiality and anonymity were ensured, and all participants retained the right to withdraw at any point without penalty. Informed consent was secured before both phases of data collection, and data were stored securely in encrypted digital folders accessible only to the research team.

4.0 Results and Discussion

This section presents the findings on the extent to which undergraduate research groups utilize various conflict resolution styles in managing disagreements. Understanding these patterns is essential for identifying the dominant approaches students employ and for assessing whether these behaviors align with constructive conflict management principles.

4.1 Extent of Collaborative Efficacy

Collaborative Efficacy Level Among Undergraduate Research Groups (N=843)

Items	Mean	Extent
1. Our group can complete the research project more successfully as a team than as individuals	2.95	High Extent
2. Our group can adapt to challenges in the research process	2.91	High Extent
3. Our group believes that every member contributes meaningfully to group discussions	2.89	High Extent

4. Our group supports one another in achieving our shared research goals	2.93	High Extent
5. Our group trusts each other's abilities to complete assigned tasks	2.90	High Extent
6. Our group stays motivated even under pressure	2.88	High Extent
7. Our group believes we can take initiative in solving research-related problems	2.88	High Extent
8. Our group is confident in making decisions collaboratively	2.87	High Extent
9. Our group can find creative solutions to difficult problems	2.87	High Extent
10. Our group believes in our collective ability to succeed	2.95	High Extent
Overall Mean	2.90	High Extent

Hypothetical Mean Range: 1.00–1.75 = Very Low Extent; 1.76–2.50 = Low Extent; 2.51–3.25 = High Extent; 3.26–4.00 = Very High Extent.

The analysis revealed that the collaborative efficacy of undergraduate research groups is practiced to a high extent, with an overall weighted mean (WM = 2.90). This score falls within the range

of 2.51–3.25, which corresponds to a High Extent interpretation.

The highest-rated indicators were "Our group can complete the research project more successfully as a team than as individuals" (WM = 2.95) and "Our group believes in our collective ability to succeed" (WM = 2.95). These results suggest that students strongly value teamwork and have confidence in their collective capabilities to achieve research objectives. According to Mydin et al. (2021), collaborative confidence contributes significantly to team productivity and resilience in academic settings.

In contrast, the lowest-rated indicators were: "Our group is confident in making decisions collaboratively" (WM = 2.87) and "Our group can find creative solutions to difficult problems" (WM = 2.87). Although these indicators still fall within the High Extent interpretation, they indicate potential challenges in group decision-making and creative problem-solving. These limitations may stem from hierarchical tendencies within the group or insufficient exposure to structured decision-making processes (Lin et al., 2021).

Thus, the results demonstrate that collaborative efficacy is well-developed among research groups, emphasizing teamwork as an essential component of successful research projects. However, areas such as collaborative decision-making and innovation require improvement to further enhance group effectiveness. Maker (2021) asserts that training in collaborative leadership and creative problem-solving can strengthen these competencies.

4.2 Extent of Conflict Resolution Styles

Conflict Resolution Styles Among Undergraduate Research Groups (N = 843)

Conflict Style	Items	Mean	Extent
Avoiding	1. We ignore conflicts in the hope they resolve on their own.	2.20	Low Extent

	2. We delay discussions about disagreements.	2.18	Low Extent
Competing	3. We try to win arguments rather than solve issues.	2.05	Low Extent
	4. We push our own ideas at the expense of others.	2.28	Low Extent
Accommodating	5. We give in to avoid group tension.	2.53	High Extent
	6. We sacrifice our own opinions to maintain peace.	2.61	High Extent
Compromising	7. We try to find a middle ground in disagreements.	2.48	Low Extent
	8. We negotiate so all sides give up something.	2.63	High Extent
Collaborating	9. We explore everyone's views to find the best solution.	3.06	High Extent

	10. We work together to resolve conflicts in a way that satisfies everyone.	3.11	High Extent
Overall Mean		2.51	High Extent

Hypothetical Mean Range: 1.00–1.75 = Very Low Extent; 1.76–2.50 = Low Extent; 2.51–3.25 = High Extent; 3.26–4.00 = Very High Extent.

The analysis revealed that the conflict resolution styles among undergraduate research groups were practiced to a high extent, as indicated by the overall weighted mean (WM = 2.51). This result falls within the range of 2.51–3.25, which corresponds to a high extent interpretation. Table 2 presents the mean scores for each style.

Among the five conflict resolution styles assessed, collaborating obtained the highest ratings, with items such as "We work together to resolve conflicts in a way that satisfies everyone" (WM = 3.11) and "We explore everyone's views to find the best solution" (WM = 3.06). These results indicate that students frequently adopt integrative strategies that involve exploring all perspectives to achieve mutually beneficial outcomes. According to Garcia et al. (2019), collaboration is linked to improved team performance and long-term relational benefits in academic settings.

In contrast, compromising and accommodating ranked next, with WM values ranging from 2.53 to 2.63, both interpreted as a high extent. These findings suggest that students sometimes rely on negotiation and concession to maintain group harmony. While these approaches can prevent prolonged disputes, overdependence may limit critical evaluation and innovation during group decision-making (Mok et al., 2021).

The lowest scores were associated with competing (WM range = 2.05–2.28) and avoiding (WM range = 2.18–2.20), which are interpreted as low extent. This indicates that research groups rarely engage in dominance-oriented or withdrawal behaviors when addressing conflicts. Such patterns reflect a strong preference for cooperative strategies over competitive or avoidant tac-

tics, which supports the development of a positive academic group climate (Naughton, 2006).

In a nutshell, these findings demonstrate that research groups prioritize inclusivity, shared responsibility, and constructive engagement in conflict management. However, the notable use of accommodating and compromising strategies suggests a tendency to value harmony, sometimes at the expense of assertiveness and critical discussion. Faculty members should therefore consider integrating structured activities that promote assertive communication, balanced negotiation, and critical dialogue, ensuring that collaboration is not achieved at the cost of robust decision-making.

4.3 Collaborative Efficacy and Conflict Management

Regression Analysis on Collaborative Efficacy and Conflict Management Effectiveness

Predictor	B	SE B	β	t	p
Constant	1.270	0.063	—	20.192	<.001
Collaborative Efficacy	0.620	0.021	0.680	29.557	<.001

Note: B = unstandardized regression coefficient; SE B = standard error of B; β = standardized beta coefficient. Dependent variable: Conflict Management Effectiveness.

The regression analysis revealed that collaborative efficacy significantly predicts conflict management effectiveness, accounting for 46.2% of the variance ($R^2 = .462$). This indicates that almost half of the variations in conflict management effectiveness can be attributed to the level of collaborative efficacy among research groups, which demonstrates the substantial influence of teamwork confidence on conflict-handling outcomes. The strong positive beta coefficient ($\beta = .680$, $p < .001$) underscores the importance of collective confidence in fostering constructive conflict management strategies. In other words, as research groups develop stronger beliefs in their ability to work collaboratively, they are more likely to address disagreements effectively, maintain harmony, and sustain productivity.

These findings are consistent with previous studies such as

Chang and Bordia (2001) and De Dreu and Weingart (2003), who reported similar associations between team efficacy and conflict resolution in organizational and academic settings. Van Zomeren et al. (2004) emphasized that groups with high collective efficacy tend to approach disagreements with problem-solving orientations rather than competitive or avoidant behaviors. Likewise, Feitosa et al. (2023) found that collaborative confidence predicts cooperative behaviors, reduced interpersonal tensions, and enhanced team cohesion.

Theoretically, this relationship reinforces Social Cognitive Theory, which emphasizes the role of efficacy beliefs in shaping group behaviors (Bandura, 1997). According to this framework, when members perceive that their group is capable of achieving goals collectively, they exert greater effort, persist longer in the face of challenges, and adopt adaptive strategies during conflicts. Rapp et al. (2022) further explained that efficacy beliefs not only enhance task performance but also influence interpersonal processes within teams.

From a practical perspective, these results imply that enhancing collaborative efficacy through targeted interventions can significantly improve conflict management effectiveness. Strategies such as structured team-building activities, reflective practices, and leadership training can strengthen group confidence and interpersonal trust, enabling members to resolve conflicts constructively. Additionally, integrating collaborative problem-solving exercises into research courses may further prepare students to navigate disagreements productively.

4.4 Dynamics of Trust, Communication, and Group Cohesion in Managing Conflict

The analysis yielded four themes describing how students manage trust, communication, and cohesion during conflicts in research groups: (1) Fragility of Trust, (2) Communication as a Double-Edged Sword, (3) Cohesion Through Shared Responsibility, and (4) Conflict as a Catalyst for Growth. These themes highlight that trust is conditional, communication can both resolve and escalate tensions, cohesion requires deliberate effort, and conflict often serves as an opportunity for learning and growth.

Theme 1: Fragility of Trust

Trust within research groups was portrayed as conditional and easily disrupted. Participants described trust as fragile, primarily influenced by individual accountability, equitable task distribution, and consistent engagement. When responsibilities were ignored or unevenly executed, members expressed frustration and doubt.

"Cooperation is not very evident… I ended up taking the lead because I knew more." (CBM-R1)

"We don't really have unity. I was the one who offered to take on a task." (CBM-R2)

Some participants reported exclusionary thoughts when peers consistently failed to participate:

"If someone didn't participate, we thought of excluding them." (CMNS-R5)

In contrast, others expressed that patience and optimism helped sustain trust despite inconsistencies:

"We trusted the process… no pressure to fight." (CAHSS-R4)

This resonates with Social Interdependence Theory (Johnson & Johnson, 1989), which posits that positive interdependence fosters trust, but negative interdependence erodes it. The findings also align with Bandura's concept of collective efficacy, where confidence in group capabilities strengthens resilience under stress (Salas et al., 2023).

Theme 2: Communication as a Double-Edged Sword

Communication emerged as both a facilitator and a disruptor of conflict resolution. Participants acknowledged that timely dialogue prevents escalation, while avoidance or reliance on digital messaging sometimes worsens misunderstandings:

"Sometimes we avoid talking because it will just lead to arguments." (CBM-R2)
"Most conflicts come from misunderstandings in chat messages." (CET-R3)

The inability to meet physically due to schedule mismatches further complicated matters.

"Schedules didn't match, so we only met virtually." (CAHSS-R4)

However, proactive communication restored harmony:

"Open communication and shared opinions helped us reach consensus." (CAES-R2)
"Don't wait for the problem to get worse before talking about it." (CAES-R1)

This duality reflects research by Jehn & Mannix (2001), who argue that communication frequency alone does not guarantee positive outcomes; the quality and tone of exchanges determine whether dialogue mitigates or inflames tension.

Theme 3: Cohesion Through Shared Responsibility

Participants emphasized that cohesion was an outcome of deliberate effort, not an automatic condition. Groups achieved unity through task distribution, reminders, and mutual assistance:
"Equal sharing of tasks and reminders helped us finish. (CBM-R3)
"We brainstormed together after disagreements." (COE-R3)
"Conflict didn't break the group; it made us more focused. (CAHSS-R4)
Pre-existing social bonds also strengthened cohesion during stressful moments:
"Our group works well because we have a bond from previous projects." (CET-R3)
This finding echoes Tjosvold's (2023) assertion that cooperative goal structures enable conflict to catalyze team synergy, provided the group sustains role clarity and positive accountability mechanisms.

Theme 4: Conflict as a Catalyst for Growth

Contrary to viewing conflict as detrimental, participants often described disagreements as transformative moments that improved collaboration and innovation.
"Conflict was resolved when we all agreed to a mixed-method approach." (CAES-R2)
"Despite delays, we managed because we cooperated later on." (CMNS-R3)
Some participants admitted that pressure and deadlines intensified tension, but these challenges strengthened adaptability:
"Deadlines and time management caused pressure and disagreements." (CAES-R1)
This perspective aligns with Rahim's (2011) model of constructive conflict, which views collaborating and compromising styles as essential in academic group settings

4.4 Integration of Results

Integration of Quantitative and Qualitative Findings on Collaborative Efficacy and Conflict Management

Core Question	Quantitative Evidence	Qualitative Insights	Integrated Interpretation
Does collaborative efficacy predict conflict	Collaborative efficacy significantly	Trust and accountability determine whether	Predictive strength reflects behavioral mechanisms

management?	predicts conflict handling (R^2 = .462, $p < .001$).	collaborative beliefs are translated into effective behavior.	uncovered qualitatively: trust-building and shared responsibility.
Which conflict styles are most practiced?	Collaborating ranks highest (WM = 3.11); avoiding and competing rank lowest.	Participants emphasized consensus-building: "Open communication and shared opinions helped us reach consensus." (CAES-R2)	A preference for integrative strategies aligns with efficacy-driven norms of inclusivity and collaborative decision-making.
How is conflict perceived by students?	Regression and descriptive stats frame conflict as a variable linked to efficacy.	Theme: Conflict as a Catalyst for Growth. "Conflict didn't break the group; it made us more focused." (CAHSS-R4)	Quantitative link is amplified by the qualitative view of conflict as an adaptive and developmental process.

The quantitative strand demonstrated a robust predictive relationship between collaborative efficacy and conflict management effectiveness (R^2 = .462, β = .680, $p < .001$), suggesting that confidence in collective capability is a significant determinant of constructive conflict resolution (Desivilya et al., 2005). Groups with higher collaborative efficacy were also more likely to adopt integrative conflict styles, as reflected in the dominance of the collaborating strategy (WM = 3.11) over competing or avoiding (Alper et al., 2023).

The qualitative findings extend these insights by revealing how and why this association operates. Participants attributed successful conflict resolution to behaviors anchored in shared responsibility and open dialogue, encapsulated in the theme Cohesion Through Shared Responsibility: *"Equal sharing of tasks and reminders helped us finish." (CBM-R3)*

Conversely, fragility of trust and communication breakdowns surfaced as risk factors that undermine collaboration, even in teams with nominally high efficacy beliefs. *"Cooperation is not very evident… I ended up taking the lead because I knew more." (CBM-R1)*

The qualitative evidence also reframed conflict as a developmental process rather than a failure point. Under the theme Conflict as a Catalyst for Growth, participants emphasized adaptability and innovation emerging from disagreements: *"Conflict didn't break the group; it made us more focused." (CAHSS-R4)*

Taken together, these findings illustrate that collaborative efficacy fosters constructive conflict management not merely through confidence but through the activation of specific interpersonal mechanisms—trust maintenance, strategic communication, and role negotiation (Tjosvold et al., 2016). This interplay underscores the importance of pedagogical interventions that cultivate not only teamwork skills but also resilience in the face of conflict.

5.0 Conclusion and Recommendation

This study established that collaborative efficacy plays a vital role in shaping how research groups manage conflict. The findings indicate that when students share confidence in their collective ability, they are more likely to engage in constructive behaviors that preserve group cohesion and foster effective problem-solving. Qualitative insights revealed that this process is sustained through trust, open communication, and equitable participation, while poorly managed interactions often stem from fragile trust and miscommunication. Furthermore, conflict was not merely viewed as disruptive but was often reframed as an opportunity for adaptive learning, reinforcing the value of collaboration as a dynamic, socially mediated process.

Building on these insights, higher education institutions should implement programs that strengthen both collaborative and conflict management skills. This includes embedding team-based learning strategies in research courses, conducting workshops on negotiation and assertive communication, and introducing reflective practices that transform conflict into a source of growth. Institutions

should also establish clear digital collaboration norms to address communication challenges in virtual environments. Future research is encouraged to explore the long-term development of collaborative efficacy and its cultural variations across academic contexts. In cultivating these competencies, institutions can enhance research productivity and prepare graduates to thrive in collaborative, team-oriented professional landscapes.

Acknowledgement

The researchers sincerely extend their gratitude to Northwestern Mindanao State College of Science and Technology (NMSCST) for granting the opportunity and resources to conduct this study. Special appreciation is also given to the participating students and faculty members who generously shared their time and insights, making this research possible. The authors likewise acknowledge the support of the Research and Development Office for its guidance throughout the study.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research article.

REFERENCES

Alper, S., Tjosvold, D., & Law, K. S. (2023). Conflict management, efficacy, and performance in organizational teams. Human Performance, 36(2), 105–126. https://doi.org/10.1080/08959285.2022.2144786

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Chang, A., & Bordia, P. (2001). A Multidimensional Approach to the Group Cohesion-Group Performance Relationship. Small Group Research, 32(4), 379–405. https://doi.org/10.1177/104649640103200401

Colaizzi, P. F. (1978). Psychological research as the phenomenologist views it. In R. S. Valle & M. King (Eds.), Existential-phenomenological alternatives for psychology (pp. 48–71). Oxford University Press.

Creswell, John & Clark, Vicki. (2023). Revisiting Mixed Methods Research Designs Twenty Years Later. 10.4135/9781529614572.n6.

De Dreu, C. K. W., & Gelfand, M. J. (2021). The psychology of conflict and conflict management in organizations. Psychology Press https://doi.org/10.4324/9780203810125

De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A meta-analysis. Journal of Applied Psychology, 88, 741-749. https://doi.org/10.1037/0021-9010.88.4.741

Desivilya, H.S., & Eizen, D. (2005). Conflict Management In Work Teams: The Role of Social Self-Efficacy and Group Identification. International Journal of Conflict Management, 16, 183-208.

Deutsch, M. (1949). A Theory of Co-operation and Competition. Human Relations, 2(2), 129-152. https://doi.org/10.1177/001872674900200204.

Elms, A. K., Gill, H., & Gonzalez-Morales, M. G. (2022). Confidence is key: collective efficacy, team processes, and team effectiveness. Small Group Research, 54(2), 191–218. https://doi.org/10.1177/10464964221104218

Feitosa, J., Davis, A. S., Romain, R., & Delice, F. (2023). Team Membership change events: processes that support gender diverse teams. Small Group Research, 55(3), 375–416. https://doi.org/10.1177/10464964231209924

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). How to design and evaluate research in education (8th ed.). New York: McGraw-Hill.

Frontiers in Education. (2023). Self-efficacy for learning beliefs in collaborative contexts: relations to pre-service early childhood teachers' vicarious teaching self-efficacy. Frontiers in Education, 8, Article 1210664 (Frontiers).

Garcia, R., Araújo, V., Mascarini, S., Santos, E. G., & Costa, A. R. (2019). How long-term university-industry collaboration shapes the academic productivity of research groups. Innovation, 22(1), 56–70. https://doi.org/10.1080/14479338.2019.1632711

Gully, S. M., Incalcaterra, K. A., Joshi, A., & Beaubien, J. M. (2002). A meta-analysis of team-efficacy, potency, and performance: Interdependence and level of analysis as moderators of observed relationships. Journal of Applied Psychology, 87(5), 819–832. https://doi.org/10.1037/0021-9010.87.5.819

Hackman, J. R., & Wageman, R. (2005). A theory of team coaching. Academy of Management Review, 30(2), 269-287.DOI: 10.5465/amr.2005.16387885 Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2005). Using Mixed-Methods Sequential Explanatory Design: From Theory to prac-

tice. Field Methods, 18(1), 3–20. https://doi.org/10.1177/1525822x05282260

Jehn, K. A., & Mannix, E. A. (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/10.5465/3069453

Johnson, D. W., & Johnson, R. T. (1989). Cooperation and competition: Theory and research. Interaction Book Company. Retrieved from: https://scholar.google.com/scholar_lookup?title=Cooperation%20and%20Competition%3A%20Theory%20and%20Research&publication_year=1989&author=D.W.%20Johnson&author=R.T.%20Johnson

Johnson, D & Johnson, F. (2019). Joining together : group theory and group skills / David W. Johnson, Frank P. Johnson. SERBIULA (sistema Librum 2.0). 27. 10.1921/gpwk.v27i3.1263

Lent, R. W., Sheu, H., Singley, D., Schmidt, J. A., Schmidt, L. C., & Gloster, C. S. (2008). Longitudinal relations of self-efficacy to outcome expectations, interests, and major choice goals in engineering students. Journal of Vocational Behavior, 73(2), 328–335. https://doi.org/10.1016/j.jvb.2008.07.005

Lin, Y., Dowell, N. M. M., & Godfrey, A. (2021). Skills matter: Modeling the relationship between decision making processes and collaborative problem-solving skills during hidden profile tasks. LAK21: 11th International Learning Analytics and Knowledge Conference, 428–437. https://doi.org/10.1145/3448139.3448180

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Sage. https://doi.org/10.1016/0147-1767(85)90062-8

Lindsley, D. H., Brass, D. J., & Thomas, J. B. (1995). Efficacy-Performance Spirals: A Multilevel Perspective. The Academy of Management Review, 20, 645-678.

Maker, C. J. (2021). From leading to guiding, facilitating, and inspiring: a needed shift for the 21st century. Education Sciences, 12(1), 18. https://doi.org/10.3390/educsci12010018

Mayer, J.D., Caruso, D. R., & Salovey, P. (2016). The ability model of emotional intelligence: Principles and updates. Emotion Review, 8, 1-11. DOI: 10.1177/1754073916639667

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3rd ed.). Thousand Oaks, CA: Sage

Publications, Inc.https://eric.ed.gov/?id=ED565763

Mok, S. S., Sukimin, I. S., Abidin, N. S. Z., Rahmat, N. H., Anyau, E., & Varma, S. B. (2021). Conflicts in Group Work: Are they all Bad? International Journal of Academic Research in Business and Social Sciences, 11(11). https://doi.org/10.6007/ijarbss/v11-i11/11246

Mydin, F., Rahman, R. S. a. R. A., & Mohammad, W. M. R. W. (2021). Research Collaboration: Enhancing the research skills and Self-Confidence of early career academics. Asian Journal of University Education. https://eric.ed.gov/?id=EJ1309465

Naughton, D. (2006). Cooperative Strategy Training and Oral Interaction: Enhancing Small Group Communication in the Language Classroom. The Modern Language Journal, 90, 169-184.

Oakley, B., Ragowsky, B., & Sejnowski, T. J. (2021). Uncommon sense teaching: Practical insights in brain science to help students learn]. Canadian Journal of Educational Administration and Policy / Revue canadienne en administration et politique de l'éducation, (202), 188–190. https://doi.org/10.7202/1099991ar

Patton, M. (2015) Qualitative Research and Evaluation Methods. 4th Edition, SaGE Publications, Thousand Oaks. - References - Scientific Research Publishing. https://www.scirp.org/reference/referencespapers?referenceid=1915688

Rahim, M. A. (2011). Managing conflict in organizations (4th ed.). Transaction Publishers. https://doi.org/10.4324/9780203984529

Rapp, T. L., Bachrach, D. G., Rapp, A. A., & Mullins, R. (2022). The role of team efficacy in shaping individual efficacy and performance: Evidence from team-based learning contexts. Journal of Applied Psychology, 107(8), 1309–1323. https://doi.org/10.1037/apl0000987

Salas, E., Tannenbaum, S. I., Kozlowski, S. W. J., Miller, C. A., Mathieu, J. E., & Vessey, W. B. (2023). Teams in space: Understanding team effectiveness in isolated, confined, and extreme environments. American Psychologist, 78(2), 209–223. https://doi.org/10.1037/amp0000965

Shenton, A. (2004). Strategies for Ensuring Trustworthiness in Qualitative Research Projects. Education for Information. 22. 63-75.10.3233/EFI-2004-22201.

Tashakkori, A., & Teddlie, C. (Eds.). (2010). Sage handbook of mixed methods in social & behavioral research. Sage. https://www.academia.edu/download/52342902/SAGE_Handbook_of_Mixed_Methods_in_Social___Behavioral_Research.pdf

Thomas, K., and Kilmann, R. (1974). Thomas-Kilmann Conflict Mode Instrument. Escon-dido, Calif.: Blanchard Training and Development.

Tjosvold, D., Wan, P., & Tang, M. M. L. (2016). Trust and Managing Conflict: Partners in developing organizations. In Industrial relations & conflict management (pp. 53–74). https://doi.org/10.1007/978-3-319-31475-4_4

Tjosvold, D. (2008). The conflict-positive organization: It depends upon us. Journal of Organizational Behavior, 29(1), 19–28. https://doi.org/10.1002/job.473

Tjosvold, D. (2023). Cooperative and competitive goal structures: A meta-analytic review of research. Journal of Organizational Behavior, 44(2), 145–168. https://doi.org/10.1002/job.2647

Van Zomeren, M., Spears, R., Fischer, A. H., & Leach, C. W. (2004). Put your money where your mouth is! Explaining collective action tendencies through Group-Based Anger and Group Efficacy. Journal of Personality and Social Psychology, 87(5), 649–664. https://doi.org/10.1037/0022-3514.87.5.649