

Effect of Team Development Intervention on Disaster Volunteer's Problem-Solving Ability and Team Work Process

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Abstract

This study investigates the impact of team development training interventions on teamwork effectiveness, as manifested by the team's problem-solving ability and the quality of their collaborative efforts. The experimental research design employed in this study involved two independent groups (a between-group design) with a singular dependent variable. The experimental group comprised 10 participants who underwent team development training interventions, while the control group, also consisting of 10 participants, underwent a placebo treatment in the form of psychological first-aid training. The assessment methodology utilized a group problem-solving test, specifically employing simulation games involving scenarios such as traffic jam and bomb squad simulations. The measurement outcomes revealed a substantial difference (44%) in task completion duration between the control and experimental groups. During the task completion, the Mann-Whitney test yielded a Z-value of -2.612, with an Asymp. Sig. (two-tailed) value of 0.009 (<0.01), indicating a significant difference in the assessment scores for the task completion process between the control and experimental groups. The interventions provided are proven to improve team cognition and affect, stimulating constructive team behavior in completing the task the groups face.

Keywords: *Team building, team training, teamwork, task work*

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Introduction

The importance of team performance in the organization has become a popular subject of research (Kozlowski, [2018](#); O'Neill & Salas, [2018](#); Rapp et al., [2021](#)). In today's constantly changing environment, it is crucial to create an efficient team that can adapt effectively and respond quickly (Cross et al., [2016](#)). Researchers are conducting more studies on the effectiveness of teamwork,

exploring various aspects such as the team's operating duration (*intact-ad-hoc*), team composition, and the working situation (Bell, Brown, et al., [2018](#); Grossman & Feitosa, [2018](#); Iskhakova & Ott, [2020](#)).

Recently, there has been an increased focus on a specific type of team – those working in extreme situations (Driskell et al., [2018](#); Kalkman, [2019](#); Salas et al., [2015](#)). These teams are unique as they face highly demanding challenges, making them the subject of many studies. Working under extreme conditions requires high skill and attention to detail, as a minor mistake can have serious consequences (Bell, Brown, et al., [2018](#)). Examples of these teams include firefighters, high-altitude workers, space explorers, and nuclear reactor maintenance teams (Driskell et al., [2018](#)).

Apart from the team above, there are other teams that operate in high-risk situations and are responsible for managing crises (Kalkman, [2019](#)). For example, disaster response teams work to minimize the impact of disasters or other threats to human safety, despite having limited information and time to make decisions. Moreover, they are also exposed to safety hazards that may endanger themselves.

The team's ability to achieve its mission impacts the organization as a whole and directly impacts the safety of the team members within it. For this reason, efforts to understand the performance of teams operating in situations like this are increasingly needed, including an understanding of strategy and efforts to improve the quality of their performance. The Muhammadiyah Disaster Management Center (MDMC) is a crisis and disaster management organization founded by Muhammadiyah after the massive earthquake and tsunami that hit Aceh province in 2006. This organization is dedicated to responding to crises and disasters and is overseen by the Muhammadiyah Central Executive. MDMC has been established in almost every region of Indonesia, including districts and provinces (MDC, 2015).

MDMC has been working for nearly a decade and has encountered numerous challenges. One of these challenges is the shortage of volunteers prepared to respond to emergencies. As a volunteer organization, MDMC has a limited number of permanent members, resulting in the organization not having a consistent team that can be called upon at any time. Recognizing that teams working in challenging situations require additional resources to perform optimally is essential. The disaster management team must be capable of solving problems in uncertain circumstances. Team performance needs to be optimized to address challenges in high-pressure situations effectively. Moreover, the team's ability to communicate and coordinate effectively is crucial in accomplishing team objectives (H van Dun & Wilderom, [2021](#))(Bell, Fisher, et al., [2018](#)).

A team's success is evaluated based on their ability to efficiently create products or services that the organization requires, aligning with the team's objective. A team's effectiveness is assessed by two key factors: taskwork and teamwork. Taskwork pertains to the team's capability to finish their assigned tasks while teamwork refers to the relationship dynamic amongst team members (Mathieu et al., [2008](#)).

Salas et al. ([2008](#)) also explained that apart from assessing outputs, various indicators can elucidate the efficacy of team functioning. These encompass scrutinizing the internal work processes within the team, including communication, decision-making procedures, and conflict resolution. These facets also serve as benchmarks for team effectiveness (Benishek & Lazzara, 2019; Salas, [2015](#)). Ideally, an effective team would have good work processing and conflict management skills.

One form of team functioning that is very important is the team's problem-solving ability. Team problem capability is the team's ability to eliminate boundaries between the current situation and the expected situation using the help of cognitive and behavioral activities (Hagemann & Kluge, [2017](#)). In the context of team problem-solving, this activity is carried out jointly by all team members. Problem-solving abilities are very important for teams, especially for teams that work in extreme situations. In extreme situations with high uncertainty, cognitive abilities such as information processing and problem-solving abilities will be limited (Kamphuis et al., [2011](#)). Alison et al., ([2014](#)) also found that uncertain environmental situations can cause individuals or teams to experience decision inertia, the team's inability to process information, solve problems, and make decisions (Alison, [2014](#)). Research shows problem-solving abilities can be improved through team training as found by Rentsch et al., (Rentsch et al., [2014](#)) who found team interventions can improve problem-solving by increasing the team's cognitive abilities.

In order to develop an effective team, two primary interventions are employed to enhance teamwork: team building and team training. Although these terms are occasionally used interchangeably, they embody distinct conceptual differences. Team training is focused on increasing the team's competence in task work. In contrast, team building aims to improve the team's ability to work together by enhancing interaction, communication, and trust among members (Lacerenza et al., [2018](#); Shuffler et al., [2011](#)).

Team training is a program that aims to enhance a team's competency. It can be conducted to improve decision-making and work performance under stressful situations. In other words, team training is a

method that aims to enhance the skills and abilities of a group. Teams can be trained to make better decisions, work effectively under pressure, and minimize errors (Salas et al., [2008](#)). There are various strategies for team training, such as cross-training, adaptation training, and team coordination training (Salas et al., 2007). These strategies enhance the team's capacity to perform their operational tasks efficiently.

Team building is training that concentrates on team dynamics and teamwork. This training emphasizes the importance of interpersonal relationships between team members, setting goals, being clear about tasks and roles, and effective communication. The primary purpose of team building training is to enhance team performance by observing the team's behavior during social interactions and formulating steps for improvement within the group (Klein et al., [2009](#)).

In practical application, these two intervention types are frequently employed in conjunction, as the challenges groups encounter in real-world scenarios often stem from multiple aspects. Examining field practices, Lacarenza et al. (2018) categorize these two intervention types within a comprehensive group intervention framework known as team development interventions. This classification also encompasses two additional forms of intervention: leadership training and team debriefing. In the present study, the term “team development intervention” will encompass the entirety of these two distinct training approaches, each with differing targets.

Volunteer teams are often hastily assembled yet mandated to execute intricate tasks within highly ambiguous situations. Concurrently, as per (Lindskog & Netz, [2021](#)) teams operating in such environments necessitate robust team stability. Consequently, heightened endeavors are requisite to enhance the competence and caliber of teamwork within such contexts. To address this, researchers have devised training modules to augment team proficiency in problem-solving and foster high-quality interpersonal relationships among team members. This study assesses the impact of team development interventions on problem-solving capabilities and teamwork processes.

The important value of this research is that experimental group research that tests the effectiveness of interventions is still limited in number. Findings regarding the effectiveness of the intervention will be very important for organizational practitioners to develop training modules that can be used to increase team effectiveness. Field research on team effectiveness needs to be improved to find out how changes in team processes affect performance as stated by Handke et al., (2020). This research is an effort to add more empirical research on team performance. This research hypothesizes:

- *There are differences in problem-solving abilities and the quality of teamwork processes between the control group and the experimental group.*

Method

Design

This experimental study was conducted employing an experimental methodology utilizing a between-group design, as outlined by (Shadish & Cook, 2002). The experimental design utilized in this study is depicted in the notation:

$$\begin{array}{ccc} \underline{R} & \underline{X} & \underline{O1} \\ R & & O2 \end{array}$$

Description:

R : Random Assignment Process

X : Intervention/Treatment Variable Pemberian Perlakuan

O1 : Post-treatment Measurement of Experimental

O2 : Post-treatment Measurement of Control Group

The population under study consists of volunteers, specifically individuals who are members of the Muhammadiyah Disaster Management Center in the Yogyakarta Special Region (DIY). The sample for this study comprised 20 MDMC volunteers randomly assigned to two groups: the control and the experimental group, with each group comprising ten members.

The experimental group received treatment involving two training sessions: team training and team building. In contrast, the control group received placebo treatment in training unrelated to teamwork, specifically, psychological first aid training. The given treatment aimed to strengthen the internal validity of the research by mitigating the potential compensatory or demoralizing effects (Creswell, 2015). This placebo intervention also sought to enhance internal validity by ensuring that differences in problem-solving ability scores arose from the content of the training and its procedures rather than merely the effects of extended social interactions.

Measurement

The dependent variable in this study was the ability to solve problems, which was evaluated through problem-solving tasks designed by the researchers for field assignments. Two problem-solving tasks were curated for this study: a bomb squad game and a traffic jam scenario. An impartial evaluator assessed the team problem-solving game, confirming its capability to elucidate facets of problem-solving within the group. Three trained professionals from the psychology field were selected as raters to establish the measurement method's validity. Problem-solving ability was gauged based on the time taken to complete the task, with higher scores awarded to teams that accomplished the task more swiftly. Following iterations of training modules and measurement protocols, five independent observers were chosen to appraise the task's appropriateness in revealing problem-solving skills. The outcomes revealed a content validity score of 7, signifying the procedure's effectiveness in assessing problem-solving skills and teamwork.

The researcher evaluated the teamwork process as the secondary dependent variable using a self-developed instrument. To ensure its validity, the instrument was appraised by five raters, yielding a score of 7 on the Aiken V scale. The teamwork process encompasses three key components: Strategy and Coordination, Communication, and Cooperation. The researcher devised an evaluation tool for observers to assess the teamwork process within the control and experimental groups. This instrument comprises statement items, such as: "Before commencing the task, the group formulates a plan." "The team engages in focused and directed discussions to devise a strategy for task completion (Strategy and Coordination)." "All team members attentively consider each other's viewpoints." "The team engages in constructive communication in both directions to accomplish the task (Communication)." "Tasks are allocated distinct functions and roles, with each team member dedicated to the agreed-upon strategy (Cooperation)."

Module

The first session of this training consists of self-disclosure material which aims to build trust between members of the newly formed team. The media used in learning is the Life Journey activity. In this session, group members share personal information about themselves with all group members. The trainer then explains why the self-disclosure process is important for a work group.

The second session in this training aims to build group skills in problem-solving as well as in task division/role clarification through the challenge of The Architect game. The Architect Game divides team members into four subteam: designers, supervisors, material suppliers, and construction workers. With the rules set in the game, the group is tested to be able to achieve the mission set by the trainer through the role of each member. At the end of the session, the trainer leads a debrief that discusses the process of the game and what the participants learned from the process.

The third session was delivered using the Bucket Ball game method which tested the team's ability to formulate goals and achieve them. Teams are challenged to determine the target value that will be achieved by throwing the ball into a basket that has a certain value. The farther the basket is from the throwing point, the higher the score you get. At the end of the session, the trainer guides the discussion and evaluation regarding the process of formulating goals and realizing the goals set by the group.

The fourth session is a problem diagnosis and knowledge-sharing session. This session teaches participants the importance of team members being able to identify problems and design plans to resolve these problems. In this material, it is also discussed that it is important for members to know each other's skills and knowledge of other members. Discussion and case study presentations are the learning methods chosen in this session.

The final session, namely communication and task coordination, was given through the Guess Who Am I (tebak Gaya) and Chain Message game methods. This game stimulates discussion about effective communication strategies, and how teams can improve the quality of their communication. At the end of the session, the trainer guides the discussion explains the conclusions from each session, and relates them to the keys to achieving effective teamwork.

Strategy	Main Target	Emphasis/ Aspect	Operational Definition	Training Session
Team Building	Interpersonal Processes	Interpersonal Relations	Emphasizes mutual understanding and mutual openness for the development of trust between team members	Session I
		Role Clarification	Emphasizes communication among team members regarding role specifications	Session II
		Problem Solving	Emphasizes identifying how to solve task-related problems and making complex decisions regarding team tasks	
		Goal Setting	Emphasizes setting goals and objectives at the individual and team level	Session III
Team Training	Team Competency	Problem Diagnosis	Analyze the problems that arise in the completion of tasks	Session IV
		Knowledge and Skill Sharing	The process of transferring knowledge and skills between team members with different task backgrounds	
		Task Communication and Coordination	Convey clear information to other group members to complete the task together.	Session V

Procedure

After preparing the training/experiment blueprint and measurement procedures, the researcher carried out a module testing process and measurement procedures which was carried out on January 12 2022, at Lecture Room 102, Faculty of Psychology, Ahmad Dahlan University. This trial involved twelve students who were recruited via chain messages that snowballed until the quota was met. Through this testing process, researchers can evaluate the flow of the modules that will be presented and the effectiveness of the challenge instructions on measurement procedures. A total of five raters who came from professional psychology master's students acted as raters for the measurement

procedure. This measurement aims to ensure the validity of the measurement procedure to be carried out. Researchers want to ensure that the challenges given are in accordance with the measurement objectives. Through Aiken V analysis, it is known that the measurement procedure obtains a V value of 0.8. This indicates that the measurement procedure developed is considered capable of describing the specified measurement targets.

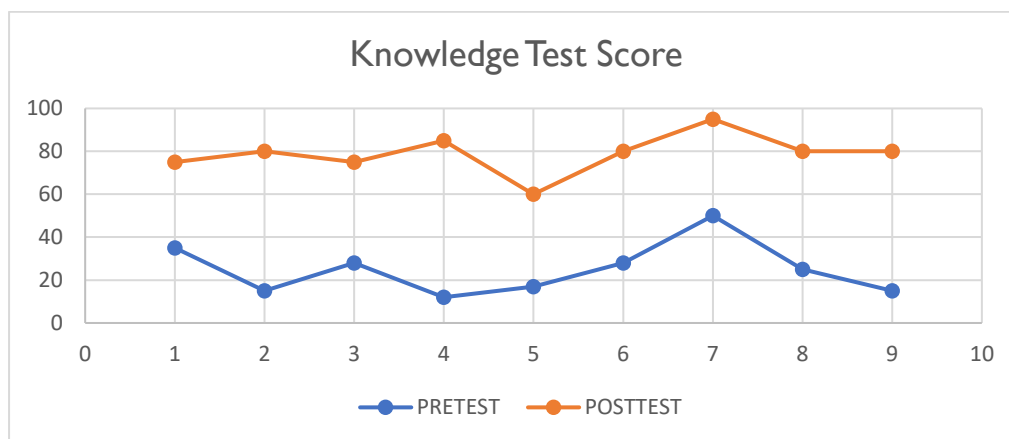
The research was carried out on January 16 2022, at the PWM Muhammadiyah DIY Building Hall, Jalan Gedongkuning. Research starts at 09.00 to 15.00 WIB. A total of 19 participants participated in the research, with details of 10 in the experimental group and 9 in the control group. The division of participants into two groups was carried out using a simple online lottery application. This draw was carried out to ensure that both groups were on equal terms. The trainer who delivers the module is a trainer with more than 10 years of experience with a bachelor psychology degree.

The control group received placebo treatment in the form of training that was not related to teamwork, namely Psychological First Aid training for Disaster Volunteers. This training material changed from what was planned, namely public speaking training, because based on input from the volunteer coordinator, the participants needed additional skills related to work in the field as disaster volunteers. This proposal was accepted by the researchers and ensured that all material and procedures in placebo training were individual and did not involve teamwork activities at all. This treatment aims to strengthen the internal validity of the research by avoiding compensatory competition or demoralization (Creswell, 2015).

After participating in the training and placebo intervention, both groups underwent a process of measuring problem-solving abilities in situations of high uncertainty using traffic jam and bomb disposal simulation games. The completion times for the two games from each group were recorded and then compared to determine differences in problem solving abilities. Meanwhile, the team's work process during task completion was recorded and rated by three trained raters using tools that had been developed by researchers.

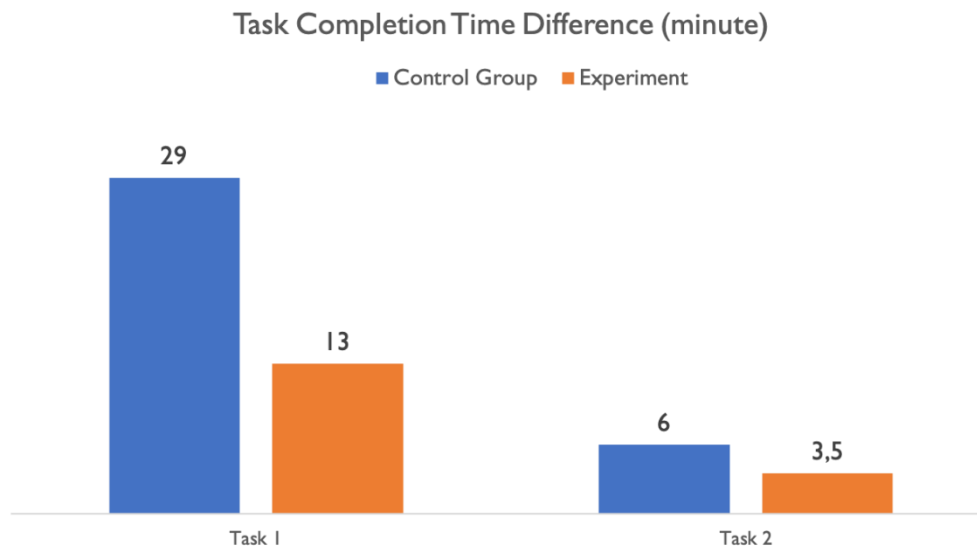
Results

The researcher administered an additional test to assess whether Team Development training led to a substantial increase in knowledge before proceeding with a distinct evaluation based on the observer's appraisal of the performance and process of both the experimental and control groups. Utilizing the Wilcoxon test for analysis, a Z value of -2.668 was obtained, accompanied by a two-tailed Asymp. Sig. of 0.008 (<0.01). This indicates a highly significant difference between the pre-test and post-test scores. Specifically, the post-test score surpasses the pre-test score, signifying a substantial enhancement in participants' knowledge attributable to the Team Development training. The discernible difference in values between the pre-test and post-test is visually depicted in Graph I:



Graph I : Participant Knowledge Pre-test and Post-test Scores

Graph I shows that all participants who underwent training experienced improvement in their knowledge test scores. Participant number 1 showed the lowest increase in score with 40 points, while the highest growth was observed in participants 2 and 9 with an increase of 65 points. Additionally, the comparison of task completion time between the experimental and control groups is depicted in the graph below.



Graph 2. Task Completion Difference Between Control Group and Experiment Group

Graph 2 shows a difference in task completion time between the control and experimental groups. The experimental group completed the task 3-4 times faster than the control group. This means that team development training effectively improves team performance for task completion in terms of task completion time.

While related to the task completion process, the same observer team observed the control and experimental groups using a validated observation instrument. The results of the observation assessment were then analyzed using the Mann-Whitney technique with the help of the SPSS application. The statistical analysis showed that the Z value was -2.612 with Asymp. The Sig. (2-tailed) was 0.009 (<0.01), indicating a significant difference in the assessment scores of the task completion process between the control and experimental groups. The experimental group scored higher on task completion process assessment than the control group.

This study utilized two statistical analysis techniques. The first technique, Wilcoxon, was used to determine the differences in knowledge test results between the pre-test and post-test of the experimental group. The second technique, Mann-Whitney, was employed to identify the differences in assessment scores from the task completion process between the control and experimental groups. Table I presents the results of both analytical methods.

Table I
Statistical Analysis Result

Analysis Technique	Z	p	Description
Wilcoxon	-2.668	0.008	There is a very significant difference
Mann-Whitney	-2.612	0.009	There is a very significant difference

Discussion

The experimental results show a significant difference between problem-solving abilities and the quality of teamwork processes in the control and experimental groups. These findings indicate that the team development intervention provided significantly impacts the two team variables. This experiment organized interventions into two main components: team training and team building. The primary aim of team building is interpersonal processes, while the primary goal of team training is team competence (Lacerenza et al., [2018](#); Perwira & Widarnandana, [2022](#)). This interpersonal process includes role clarification, problem-solving, interpersonal relationships, and setting common goals. Additionally, team training focuses on developing competencies related to coordinating tasks, diagnosing problems, and sharing skills and knowledge relevant to the tasks at hand.

Improving the team's ability to complete tasks is achieved through a team training intervention strategy. The activity in this training session is sharing knowledge and skills and practicing identifying and solving problems together. In addition, the team's ability to coordinate tasks is also trained through communication game activities that hone group members' skills to communicate effectively in completing tasks. The trainer has a material delivery session at the end of each activity to strengthen the insights the participants got from previous activities.

Improving the quality of teamwork processes is achieved through interventions that target interpersonal relationships between members. A personal disclosure session where participants open up to their new partners can build a relationship based on better mutual trust that supports their interactions in tasks in the measurement session. Clarity of roles and objectives that are shot through

the ability to develop the ability to set goals (goal setting) enables the team to set group goals effectively and work together to achieve these goals.

This study's results align with the research on team building and training, which are reported to impact teamwork processes and team effectiveness. In the conceptual framework of work teams proposed by Kozlowski, (2015) team effectiveness can be seen from input, process, and output. Team input includes group members' task structure and composition, including differences in skills, personality, and abilities. Meanwhile, the team process team output consists of the team's ability to achieve its goals and the satisfaction of team members. The third aspect of the group, namely the team process, is the component most widely discussed by researchers, considering that this aspect determines how the team's input is processed into output following the group's goals. The process team aspect consists of team cognition, affect, and behavior. The three elements of the team process that emerged in this study will be discussed separately.

The first aspect is the aspect of team cognition. In an effective team, a common way of thinking among group members is called a team mental model. The similarity of this way of thinking will accelerate the resolution of a problem. The team mental model is fundamental for a team, especially for teams working in urgent situations, because it will streamline group performance when time and circumstances limit them from communicating intensively (Lim & Klein, 2006) Much research supports the finding that team mental models are positively related to team performance and team processes, for example (Burtscher & Manser, 2012; Gardner et al., 2017; van den Bossche et al., 2011). According to Toader & Kessler, (2018) mental models can be formed by providing exposure to the same information. The various joint activities the subjects went through could give direction to the same information on the topic to stimulate the mental model team.

The second aspect that develops in an effective team is the team affect or how a positive atmosphere is built. Team affects refers to how comfortable group members feel with the atmosphere in their team. This aspect also includes interpersonal relations, communication, and also psychological safety. Psychological safety is the feeling of security for group members to be in their group (Edmondson & Lei, 2014). This aspect was found to affect group performance. For example, what was reported by Frazier et al.'s (2017) in their meta-analysis study proved that psychological safety could lead to positive team outputs, including team performance as also reported in Fyhn et al., 2022; Kim & Bell, 2023; O'Neill & McLarnon, 2018.

The constructive discussions that emerged in the experimental group indicated the existence of team-trust which is known to be very positively related to team performance. As stated by Knight & Eisenkraft, (2015), sharing positive views and feelings between group members can increase social integration within the group which will ultimately have a positive effect on task performance. The training intervention in the experimental group fostered positive emotions in the team so the performance of the experimental group was better than the control group. In line with this, (Davis et al., 2022) also stated that team training often has no long-term effect because it ignores positive affection or emotional factors in the training menu

In this study, the experimental group had a higher work process score than the control group regarding established assessment indicators such as communication and collaboration. The observers recorded a constructive two-way discussion process in solving problems that involved all group members. This indicates that positive affect is decisive in achieving group goals. Knight & Eisenkraft (2015) revealed that positive affect supports the emergence of social integration and is positively related to team performance. This aligns with findings (Beauchamp et al., 2017) which reveal that interventions that increase trust between personnel are proven to improve individual performance in teams. This is also in line with the findings (Pollack & Matous, 2019) found team building with self-disclosure intervention media increased the comfort and intensity of communication between team members.

Team cognition and positive team are interrelated and give rise to team behavior. According to Kozlowski (2018), there are three vital team behaviors: coordination, communication, and cooperation. The three team processes in the form of team behavior appear in the teamwork process in completing group assignments. Based on observational notes, constructive communication emerged in the experimental group while doing the task. This process was seen in constructive discussion as the group attempted to complete the two tasks. Communication intensity is known to have a positive impact on team performance because communication eliminates boundaries between individuals. Szabó et al., (2023) found that communication intensity prevents poor team performance. Furthermore, Eisenberg et al., (2021) found that intensive verbal communication can increase the perception of closeness between members, which has a positive impact on team performance..

There are several notes to improve the quality of similar research in the future. With the main goal being to reveal team building instantly, it would be more suitable if the subjects involved in this research didn't know each other. In this study, it was not easy to realize because some volunteers already knew one another.

Conclusion

Drawing from the findings of this study, it is evident that team development training can significantly improve group performance in problem-solving skills. Furthermore, the interventions have also been proven to significantly improve the quality of the team's work processes. Team development training can be given to teams deployed to their work areas, especially for newly formed teams, to help the work team work more effectively.

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References

- Alison, L., Power, N., Heuvel, C. Van Den, & Waring, S. (2014). *Journal of Applied Psychology A Taxonomy of Endogenous and Exogenous Uncertainty in High-Risk , High-Impact Contexts A Taxonomy of Endogenous and Exogenous Uncertainty in High-Risk , High-Impact Contexts*. doi: 10.1037/a0038591
- Beauchamp, M. R., McEwan, D., & Waldhauser, K. J. (2017). Team building: conceptual, methodological, and applied considerations. *Current Opinion in Psychology*, 16(16), 114–117. doi: 10.1016/j.copsyc.2017.02.031
- Bell, S. T., Brown, S. G., & Weiss, J. A. (2018). A conceptual framework for leveraging team composition decisions to build human capital. *Human Resource Management Review*, 28(4), 450–463. doi: 10.1016/j.hrmmr.2017.06.003
- Bell, S. T., Fisher, D. M., Brown, S. G., & Mann, K. E. (2018). An Approach for Conducting Actionable Research With Extreme Teams. *Journal of Management*, 44(7), 2740–2765. doi: 10.1177/0149206316653805
- Burtscher, M. J., & Manser, T. (2012). Team mental models and their potential to improve teamwork and safety: A review and implications for future research in healthcare. *Safety Science*, 50(5), 1344–1354. doi: 0.1016/j.ssci.2011.12.033

- Cross, R., Rebele, R., & Grant, A. (2016). Collaborative Overload. *Harvard Business Review*, 74–79. <https://hbr.org/2016/01/collaborative-overload>
- Driskell, T., Salas, E., & Driskell, J. E. (2018). Teams in extreme environments: Alterations in team development and teamwork. *Human Resource Management Review*, 28(4), 434–449. doi: 10.1016/j.hrmr.2017.01.002
- Eisenberg, J., Glikson, E., & Lisak, A. (2021). Multicultural Virtual Team Performance: The Impact of Media Choice and Language Diversity. *Small Group Research*, 52(5), 507–534. doi: 10.1177/1046496420985614
- Fyhn, B., Bang, H., Sverdrup, T. E., & Schei, V. (2022). Safe Among the Unsafe: Psychological Safety Climate Strength Matters for Team Performance. *Small Group Research*, 54(4), 439–473. doi: 10.1177/10464964221121273
- Gardner, A. K., Scott, D. J., & AbdelFattah, K. R. (2017). Do great teams think alike? An examination of team mental models and their impact on team performance. *Surgery (United States)*, 161(5), 1203–1208. doi: 10.1016/j.surg.2016.11.010
- Grossman, R., & Feitosa, J. (2018). Team trust over time: Modeling reciprocal and contextual influences in action teams. *Human Resource Management Review*, 28(4), 395–410. doi: 10.1016/j.hrmr.2017.03.006
- van Dun, D., & Wilderom, C. P. M. (2021). Improving high lean team performance through aligned behaviour-value patterns and coactive vicarious learning-by-doing. *International Journal of Operations and Production Management*, 41(13), 65–99. doi: 10.1108/IJOPM-11-2020-0809
- Hagemann, V., & Kluge, A. (2017). Complex problem solving in teams: The impact of collective orientation on team process demands. *Frontiers in Psychology*, 8(SEP), 1–17. doi: 10.3389/fpsyg.2017.01730
- Iskhakova, M., & Ott, D. L. (2020). Working in culturally diverse teams: Team-level cultural intelligence (CQ) development and team performance. *Journal of International Education in Business*, 13(1), 37–54. doi: 10.1108/JIEB-11-2019-0052
- Kalkman, J. P. (2019). Sensemaking questions in crisis response teams. *Disaster Prevention and Management: An International Journal*, 28(5), 649–660. doi: 10.1108/DPM-08-2018-0282
- Kamphuis, W., Gaillard, A. W. K., & Vogelaar, A. L. W. (2011). The Effects of Physical Threat on Team Processes During Complex Task Performance. *Small Group Research*, 42(6), 700–729. doi: 10.1177/1046496411407522
- Kim, E., & Bell, B. S. (2023). Team Membership Change and Team Effectiveness: The Role of Informational Attributes. *Small Group Research*, 10464964231195536. doi: 10.1177/10464964231195537
- Klein, C., DiazGranados, D., Salas, E., Le, H., Burke, C. S., Lyons, R., & Goodwin, G. F. (2009). Does team building work? *Small Group Research*, 40(2), 181–222. doi: 10.1177/1046496408328821
- Knight, A. P., & Eisenkraft, N. (2015). Positive is usually good, negative is not always bad: The effects of group affect on social integration and task performance. *Journal of Applied Psychology*, 100(4), 1214–1227. doi: 10.1037/apl0000006
- Kozlowski, S. W. J. (2015). Advancing research on team process dynamics: Theoretical, methodological, and measurement considerations. *Organizational Psychology Review*, 5(4), 270–299. doi: 10.1177/2041386614533586

- Kozlowski, S. W. J. (2018). Enhancing the Effectiveness of Work Groups and Teams: A Reflection. *Perspectives on Psychological Science, 13*(2), 205–212. doi: 10.1177/1745691617697078
- Lacerenza, C. N., Marlow, S. L., Tannenbaum, S. I., & Salas, E. (2018). Team development interventions: Evidence-based approaches for improving teamwork. *American Psychologist, 73*(4), 517–531. doi: 10.1037/amp0000295
- Lim, B. C., & Klein, K. J. (2006). Team mental models and team performance: A field study of the effects of team mental model similarity and accuracy. *Journal of Organizational Behavior, 27*(4), 403–418. doi: 10.1002/job.387
- Lindskog, C., & Netz, J. (2021). Balancing between stability and change in Agile teams. *International Journal of Managing Projects in Business, 14*(7), 1529–1554. doi: 10.1108/IJMPB-12-2020-0366
- Mathieu, J., Maynard, T. M., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34*(3), 410–476. doi: 10.1177/0149206308316061
- O'Neill, T. A., & McLarnon, M. J. W. (2018). Optimizing team conflict dynamics for high performance teamwork. *Human Resource Management Review, 28*(4), 378–394. doi: 10.1016/j.hrmr.2017.06.002
- O'Neill, T. A., & Salas, E. (2018). Creating high performance teamwork in organizations. *Human Resource Management Review, 28*(4), 325–331. doi: 10.1016/j.hrmr.2017.09.001
- Perwira, L. T., & Widarnandana, I. G. D. (2022). Are Team Building Interventions Still Relevant? *Psikostudia, 11*(4), 520–531. <https://e-journals.unmul.ac.id/index.php/PSIKO/article/view/8723>
- Pollack, J., & Matous, P. (2019). Testing the impact of targeted team building on project team communication using social network analysis. *International Journal of Project Management, 37*(3), 473–484. doi: 10.1016/j.ijproman.2019.02.005
- Rapp, T., Maynard, T., Domingo, M., & Klock, E. (2021). Team Emergent States: What Has Emerged in The Literature Over 20 Years. *Small Group Research, 52*(1), 68–102. doi: 10.1177/1046496420956715
- Rentsch, J. R., Delise, L. A., Mello, A. L., & Staniewicz, M. J. (2014). The Integrative Team Knowledge Building Training Strategy in Distributed Problem-Solving Teams. *Small Group Research, 45*(5), 568–591. doi: 10.1177/1046496414537690
- Salas, E., Tannenbaum, S. I., Kozlowski, S. W. J., Miller, C. A., Mathieu, J. E., & Vessey, W. B. (2015). Teams in Space Exploration: A New Frontier for the Science of Team Effectiveness. *Current Directions in Psychological Science, 24*(3), 200–207. doi: 10.1177/0963721414566448
- Shuffler, M. L., DiazGranados, D., & Salas, E. (2011). There's a science for that: Team development interventions in organizations. *Current Directions in Psychological Science, 20*(6), 365–372. doi: 10.1177/0963721411422054
- Szabó, R. O., Battiston, F., & Koltai, J. (2023). Faultlines, Familiarity, Communication: Predictors and Moderators of Team Success in Escape Rooms. *Small Group Research*. doi: 10.1177/10464964231183456
- Toader, A. F., & Kessler, T. (2018). Team Mental Models, Team Goal Orientations, and Information Elaboration, Predicting Team Creative Performance. *Creativity Research Journal, 30*(4), 380–390. doi: 10.1080/10400419.2018.1530912
- van den Bossche, P., Gijselaers, W., Segers, M., Woltjer, G., & Kirschner, P. (2011). Team learning:

Building shared mental models. *Instructional Science*, 39(3), 283–301. doi: 10.1007/s11251-010-9128-3