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Break and Fix It (Brick It) Training: Improving Problem Solving Skills in Student Organizations

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Abstract

Student organizations require effective problem-solving skills to navigate challenges and achieve their goals. This community service activity was conducted in response to identified issues within the Himpunan Mahasiswa Program Studi Komunikasi dan Penyiaran Islam (HMPS KPI) at UIN Sultan Aji Muhammad Idris Samarinda, including unclear task divisions and misaligned work programs. Adopting an experiential learning approach, 16 members attended the training, which centered on using a fishbone analysis diagram to deconstruct organizational problems. The program's effectiveness was assessed using two levels of the Kirkpatrick evaluation model. Level 1 (reaction) was measured via a satisfaction questionnaire, and Level 2 (cognitive) was measured using a pre-test and post-test design analyzed with a paired sample t-test. The results indicated a highly positive reaction from participants, with 100% rating the training material and benefits as excellent. The cognitive evaluation showed an 8% increase in participants' understanding, with the mean score improving from 58.25 (pre-test) to 66.25 (post-test). Although this increase was not statistically significant ($p > 0.05$), qualitative feedback confirmed that the training positively impacted the organization by fostering increased participation and enhancing members' problem-solving abilities. The training successfully provided practical skills, leading to improved organizational dynamics and performance.

Keywords: Problem-Solving Skill; Student Organization; Fishbone Analysis; Training; Experiential Learning

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BACKGROUND

Student organizations in higher education are fundamental platforms for students' self-development and potential (Pertiwi et al., 2021). They exist not only as means of individual expression but also as collaborative environments for achieving common goals (Tondang et al., 2025). To achieve its goals, each member of the organization is required to have various skills (Adriansyah et al., 2023), one of which is effective problem-solving ability. This ability is defined as the competence to identify problems, formulate them, and find and implement the most effective solutions (Md, 2019). Without the ability to think critically when solving problems, an organization risks stagnation and difficulty achieving effective performance (Veríssimo et al., 2024).

The ability to effectively solve problems is a cornerstone for the success of any university student organization, directly contributing to the achievement of its goals and fostering a dynamic and resilient operational environment (Stadler et al., 2018). Within these organizations, students are constantly faced with a myriad of challenges, from logistical hurdles in event planning and budgetary constraints to interpersonal conflicts among members and the strategic development of impactful initiatives (Fantozzi et al., 2024). The application of robust problem-solving skills enables student leaders and members to navigate these complexities efficiently (Sun et al., 2022). As supported by research, a strong positive correlation exists between problem-solving abilities and learning outcomes, which, in the context of a student organization, translates to the successful execution of programs and the attainment of the group's mission (Stadler et al., 2018). By systematically identifying issues, analyzing underlying causes, and generating and implementing viable solutions, student organizations can overcome obstacles that might otherwise hinder their progress and effectiveness (He et al., 2023).

The impact of well-developed problem-solving skills on an organization's performance is profound, leading to enhanced efficiency, innovation, and overall member development (Choudhar et al., 2022). Organizations that cultivate a problem-solving culture are better equipped to adapt to unforeseen circumstances and are more likely to achieve a higher standard of performance in their projects and activities (Tan, 2019). This proactive approach to challenges fosters critical thinking and creativity among members, essential competencies for a thriving organization. Furthermore, the process of collaborative problem-solving strengthens teamwork, improves communication, and builds a sense of shared ownership and accomplishment (Herro et al., 2023; Sun et al., 2022). The development of these skills within the context of a student organization not only benefits the immediate performance of the group but also equips individual students with valuable competencies that are highly sought after in their future professional endeavours, thereby enhancing their personal growth and career readiness (Rahmah & Muhliansyah, 2020).

The community service activities of the Himpunan Mahasiswa Program Studi Komunikasi dan Penyiaran Islam (HMPS KPI) at UIN Sultan Aji Muhammad Idris Samarinda stemmed from a comprehensive needs assessment—conducted via in-depth interviews and participatory observations—that uncovered critical challenges in the organization’s internal dynamics, including unclear task and role divisions that led to overlapping or vacant responsibilities and a misalignment between work program objectives and the organization’s real strategic needs, which undermined the impact of many initiatives. In response, we designed a targeted training program centered on problem-solving using the fishbone

analysis diagram, selected for its ability to visually map root causes in a structured way and thereby facilitate more focused, productive brainstorming sessions. By externalizing potential causes and fostering collaborative analysis, this training equips HMPS KPI members with practical skills to deconstruct organizational issues, realign goals with work programs, and ultimately enhance both individual effectiveness and overall organizational performance.

IMPLEMENTATION METHOD

1. Lecturer Activities
   The lecturer acts as the person in charge and director of this project. This activity is part of the practicum in industrial and organizational psychology course.
2. Students Activities
   Students act as implementers in this activity. In carrying out this BRICK IT training, students are assisted by several senior students who have completed industrial and organizational psychology courses.
3. Brief Description of Partners
   The partner of this community service project is Himpunan Mahasiswa Program Studi Komunikasi dan Penyiaran Islam (HMPS KPI) at UIN Sultan Aji Muhammad Idris Samarinda. Students who are members of this group become participants in the training activities. The number of participants in this training was 16 students.
4. Implementation Steps
   4.1 Pre-activity
   Problem identification
   Problem identification is a very important first step in a research process. In this context, problem identification aims to understand the problems that occur in the HMPS KPI. This process is carried out using Training Needs Assessment (TNA), which is based on the Six Weisbord Model theory (Wardhani et al., 2024). Questionnaires distributed to all administrators and members of HMPS KPI UINSI, observations and interviews conducted to the daily board and department heads as well as several active members of HMPS KPI UINSI. Based on the problem identification, it was found that the organization has problems in it's members problem solving ability.
   The preparation of training modules
   Once the problems in the organization have been identified, the next step is to develop a training module as a guide to ensure that the training activities run according to standards. The module contains a summary of the training material as well as the schedule and series of events that will take place during the training.
   4.2 BRICK IT Training
   The method used in this training program is experiential learning which is given in the form of face-to-face training to members of the HMPS KPI at UIN Sultan Aji Muhammad Idris Samarinda. The training was held in lecture room 302 of the Faculty of Da'wah and Communication of UIN Sultan Aji Muhammad Idris on December 7, 2024. The number of participants who attended this training was 16 people. The material was delivered by resource persons who are professional practitioners in the field of psychology through presentation methods or interactive lectures followed by ice breaking sessions to restore the focus of participants when participating in

activities in order to create a more interactive training atmosphere. The practice of problem solving is carried out with a group case study brainstorming approach where the committee as a group facilitator will provide a case study in the form of a problem and then participants will try to solve the problem using the fishbone analysis diagram method then presented to the front by each group, as well as a question and answer discussion to the speaker. Participants were also asked to fill out pre-test, post-test, and training feedback forms. The following is an outline of the training activities:

1) Pre-test: An initial evaluation conducted to measure the level of cognitive understanding of participants before the training material is given.
2) Presentation/lecture: Training material on problem solving is delivered actively by the resource person with the aim of improving the organization's ability to solve problems.
3) Ice breaking: Interactive games designed to create a relaxed atmosphere and help participants feel more comfortable before continuing the training session.
4) Problem-solving practice: Participants are grouped to perform simulations or role-plays using scenarios relevant to real-life situations in the implementation of work programs. The goal of this practice is to train participants to solve problems effectively and contribute to increased organizational productivity.
5) Discussion: Participants can deepen their understanding of aspects that may not have been fully covered during the presentation. In this discussion, participants are given the opportunity to ask questions, engage in direct dialogue with the speakers, and brainstorm solutions together.
6) Post-test: A final evaluation that aims to measure participants' cognitive understanding after all training materials have been delivered.
7) Feedback: An evaluation sheet provided to determine the effectiveness of the training in helping participants understand and master problem-solving skills.

5. Monitoring and Evaluation

In this study we used two levels of evaluation, cognitive evaluation and reaction evaluation. We collected data for cognitive evaluation using pre-test and post-test methods. The instrument used is the Problem-Solving Skill Evaluation Instrument (Adams & Wieman, 2007). After the data was collected, we conducted a quantitative analysis using the t-test method to see if there was a difference in knowledge before and after the training. We evaluated the participants reactions using questionnaires to measure the level of participant satisfaction with the training. This assessment covers several key indicators, such as the timeliness of the training sessions, the quality of the material presented, the way the training was delivered, the competence of the trainers during the training, the training atmosphere, the training process, and the benefits of the training.

RESULTS AND DISCUSSION

RESULTS

Implementation

Participants in this problem solving training are members of the di Himpunan Mahasiswa Program Studi Komunikasi dan Penyiaran Islam UIN Sultan Aji Muhammad Idris consisting of the chairman, vice chairman, secretary, treasurer, head of department and

members. The number of participants in this training is 16 people. Therefore, the subjects in this study are active members of HMPS KPI UINSI, totaling 16 people.

Table 1. Characteristics of participants based on gender

No.	Gender	Frequency	Persentase
1	Male	5	31,25%
2	Female	11	68,75%
	Total	16	100%

The training was held on Saturday, December 7, 2024, and conducted face-to-face in lecture hall 302 FDK Building 3rd Floor UIN Sultan Aji Muhammad Idris Samarinda. Preparation in the training room went smoothly. Before the training began, participants registered, participants who came were directed to fill in the attendance sheet and then given a number badge and snacks. The training started on time and according to the rundown. Furthermore, when the participants had met 16 participants, the training began with an opening from the MC and then continued with singing the mandatory Indonesia Raya song by all participants.

Then, followed by the activity of giving remarks by the chairman of the training implementation committee and the head of the HMPS KPI UINSI organization. The event continued with the recitation of prayers and documentation of all participants and invited guests. The MC continued the event with an exchange between the MC and the moderator who read the participant's learning contract then the speaker's CV which was then continued with the delivery of material by the speaker. In this session the participants were very serious and enthusiastic in understanding and learning the material presented, as well as showing the interaction between the speaker and the participants.

Picture 1. Material delivery session

After the speaker finished explaining, it was followed by an ice breaking session to increase the enthusiasm of the participants. In this session, participants became more focused on the activity because they interacted with other participants. The completion of the ice breaking session was the material application session, namely by providing application sheets to all participants who had been divided into several groups to create problem solving from the case study given through the fishbone analysis diagram framework to write the results of group brainstorming.

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Picture 2. Practice session

When all groups of participants finished filling in the material application sheet, four groups then came forward to present the results of the diagram that had been written on the material application sheet. After the four groups finished presenting, the speaker gave feedback to each group and then continued with a question-and-answer session. The following is documentation of the feedback and question and answer session, as shown in Figures 3 and 4.

Picture 3. Group presentation session

Picture 4. Q&A Session

After the question-and-answer session was over and the speaker answered questions from the participants, the moderator gave the opportunity to the participants to give a closing statement, namely explaining the conclusions of the material that had been delivered. Furthermore, all participants filled out the post-test sheet and evaluation sheet. After the post-test and evaluation sheet were completed, the next step was to give a certificate to the speaker and give a plaque to HMPS KPI, then the moderator announced 2 participants and 1 group of door prize winners with the best group results category and the most active and most excited participants during the training.

The moderator then transferred back to the MC then the MC closed the training event. After the closing, it was followed by a group photo session between all participants and presenters led by the documentation team. After the photo session was over, the MC allowed the participants to leave the hall. This training uses two levels of evaluation, including cognitive evaluation and reaction evaluation.

Cognitive Evaluation

The results of cognitive evaluation using the paired sample t-test method can be seen in tables 2 and 3.

Table 2. Paired Samples Statistic

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	***Pre-Test***	58.25	16	15.494	3.874
	Post-Test	66.25	16	12.657	3.164

This evaluation was conducted to determine the difference in the level of understanding of problem solving on Himpunan mahasiswa Program Studi Komunikasi dan Penyiaran Islam UIN Sultan Aji Muhammad Idris (HMPS KPI) before and after the training.

Table 3. Paired Sample T-Test Result

Paired Sample T-Test				
	t	**Df**	**Sig.**	**Mean Difference**
Pre-Test – Post-Test	-2.004	15	0,064	-8.000

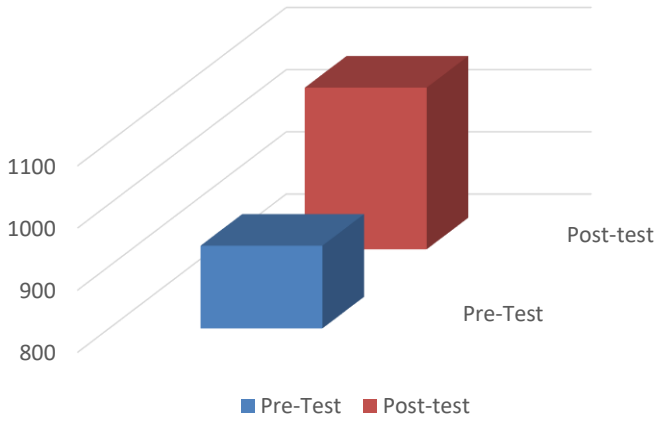

Figure 1. Comparative Evaluation Results of Pre-Test and Post-Test

Based on the table above, the pre-test and post-test treatment with problem-solving training obtained the result of t = -2.004, with p = 0.064 (p>0.05) which indicates that statistically there is no significant difference. However, the mean values of the pre-test and post-test showed that there was an increase in the trainees' knowledge of problem-solving after attending the training. This can be seen from the mean change between the initial data (pre-test) and the final data (post-test). Overall, it can be concluded that the training influenced the participants' knowledge, although the effect was not significant enough based on the results of the statistical tests conducted.

Reaction Evaluation

The results of the reaction evaluation of the implementation of the training activities can be seen in Figure 2.

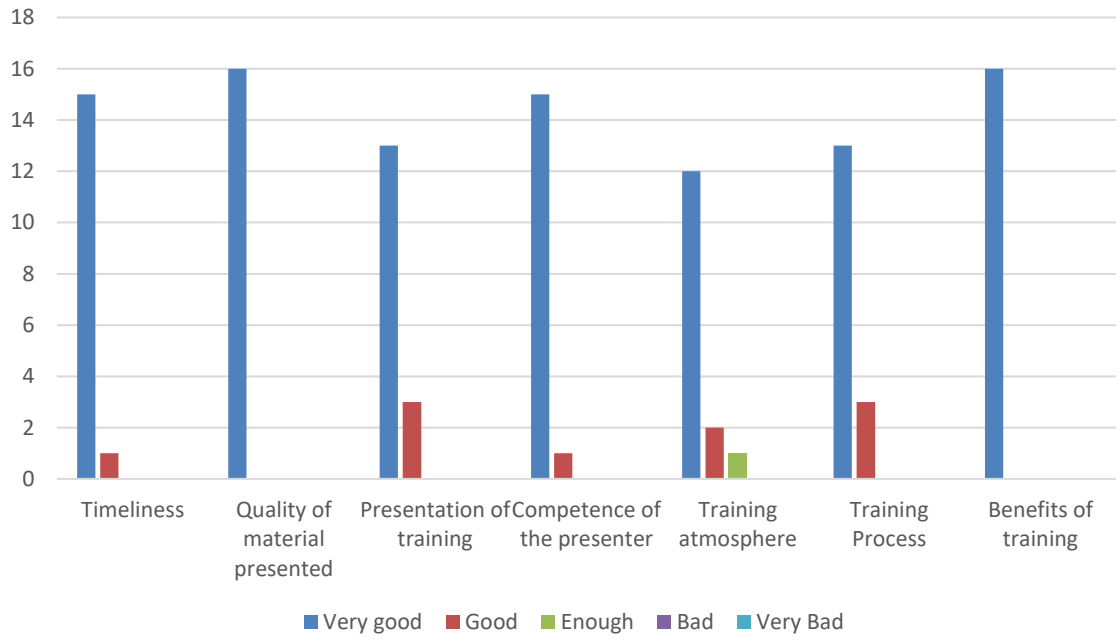

Figure 2. Reaction evaluation results

Based on the evaluation of the training implementation, 93.75% rated the timeliness as excellent, the quality of the material as 100% excellent, and the presentation method as 81.25% excellent. The competence of the presenters was rated excellent by 93.75%, the training atmosphere by 75%, and the training process by 81.25%. Overall, the benefits of the training were rated as excellent by 100% of participants.

Results Evaluation

Overall, from the reaction evaluation, it can be seen that the average participant can understand what is conveyed by the speaker. The speaker seemed to be very good at the material and tried to make the atmosphere fun and interesting. The purpose of this training is for each member of HMPS KPI to be able to understand the concept of problem solving and improve problem solving skills between members to create effective performance in the organization. The results of the participants' cognitive measurements showed that out of 16

participants, before the training (pre-test) had an average understanding of 58.25% and after the training (post-test) had an average of 66.25%, there was an increase of 8% in the participants' learning outcomes regarding problem solving, therefore, it can be ascertained that the participants' understanding and knowledge increased after attending this training. The results of the participant evaluation also explained that the participants were able to understand the material provided and follow this training well.

Based on input from the Chairperson of HMPS KPI, members showed an increase in the activeness of expressing opinions and were able to solve problems very well, thus making a positive contribution to improving the performance of HMPS KPI. This shows the importance of strengthening problem solving skills to support overall organizational performance.

By developing these problem solving skills, organizational members can build mutual trust and enable them to take on more responsibility for meeting established team goals both within the organization and beyond. Based on the results of the research conducted, it shows that it is important for an organization to empower members based on aspects of problem solving which are expected to increase the productivity of member performance in the organization.

DISCUSSION

The present study explored the effectiveness of the Break and Fix It (BRICK IT) training in enhancing problem-solving skills among members of a student organization, using fishbone analysis as the core experiential tool. Although the 8% increase in mean scores from pre-test to post-test did not reach statistical significance ($p = .064$), the upward trend suggests that even a brief, single-session intervention can spur cognitive gains in problem formulation and solution planning (Wen et al., 2013). Prior work in higher education settings similarly reports modest but meaningful improvements in complex problem-solving competence following targeted workshops, particularly when sample sizes are small and designs lack control groups (Arizal et al., 2025; Dawkins et al., 2019).

Participants' uniformly positive reaction ratings—100% "excellent" for training material and benefits—underscore the motivational value of experiential formats (Fortunela et al., 2022). According to Kirkpatrick's model, high satisfaction (Level 1) often predicts greater engagement with content, which in turn supports cognitive learning (Level 2) and, ultimately, behavioral transfer (Bauer & Goehlich, 2020). In this study, participants' enthusiastic involvement in ice breakers, case-study brainstorming, and group presentations likely reinforced their conceptual grasp of problem-solving frameworks, even if immediate test gains remained modest.

The structured use of fishbone analysis proved well suited to the organizational context, aligning with findings that visual mapping tools facilitate root-cause identification and collaborative ideation (Välk et al., 2023). By externalizing problem dimensions into "bones," members reported clearer role clarity and more focused brainstorming—outcomes echoed in collaborative learning environments where graphic organizers have been shown to boost both creativity and analytic precision (Sun et al., 2022). This suggests that incorporating similar diagrammatic techniques into routine committee meetings may sustain performance improvements beyond one-off trainings (Khan et al., 2019).

Practically, these findings encourage student-organization leaders to embed short, experiential workshops into their professional-development agendas. A modular BRICK IT

curriculum—augmented with follow-up sessions and peer coaching—could compound cumulative learning and precipitate statistically robust gains in future iterations. Moreover, equipping organizational heads with basic training-needs assessment tools, as modeled by the Six Weisbord Boxes framework, can help tailor interventions to the most critical skill gaps (Adebayo et al., 2021).

Generalizability is limited in several ways. First, the single-group, pre-post design and small sample (n = 16) limit causal inference and statistical power; future research should incorporate control or comparison groups and conduct a priori power analyses (Bobrownicki et al., 2022). Second, the evaluation stopped at Kirkpatrick Levels 1 and 2. Without longitudinal assessment of behavior change (Level 3) or organizational outcomes (Level 4), claims of improved performance remain provisional. Collecting performance metrics—such as program completion rates or member-retention figures—would bolster evidence for real-world impact . Finally, reliance on self-report and test scores may introduce social desirability and testing-effect biases (Pauls & Stemmler, 2003); triangulating with objective observation or peer ratings could yield more nuanced insights (McDaniel et al., 2019).

Despite these constraints, this project underscores the promise of experiential, diagram-based trainings to catalyze problem-solving development in student organizations. By systematically identifying needs, delivering bite-sized modules, and soliciting rich feedback, practitioners can foster a culture of continuous improvement and collective resilience (Morrell, 2021). Future studies should explore scalable, blended-learning adaptations of BRICK IT—integrating digital fishbone platforms and asynchronous reflection journals—to maximize reach and sustainability across diverse student cohorts.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the training conducted with Himpunan Mahasiswa Program Studi Komunikasi dan Penyiaran Islam (HMPS KPI), It can be concluded that there is an increase in participants' understanding of problem solving after attending the training. This can be seen from the comparison of the pre-test score of 58.25 percent with the post-test of 66.25%, indicating an increase of 8 percent in participants' understanding of the material presented. In a sustainable effort, the head of the organization is suggested to encourage members to be more active in expressing opinions and improve more complex problem solving skills which in turn can support the improvement of overall organizational performance.

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