



## Effects of a structured facilitator training module on perceived facilitator and program quality in outdoor education: a quasi-experimental study

*Efectos de un módulo estructurado de formación para facilitadores en la calidad percibida del facilitador y del programa en la educación al aire libre: un estudio cuasi-experimental*

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### Abstract

**Introduction:** This study evaluates the effects of a structured facilitator training module on facilitator quality and program quality within the Outdoor Education program at Sultan Idris University of Education (UPSI). Outdoor education plays a key role in youth development, fostering essential skills like communication, leadership, and teamwork. However, limited research exists on how facilitator training influences these aspects, particularly in higher education contexts.

**Objective and Methodology:** A quasi-experimental pretest-posttest design with a comparison group was employed. A total of 302 participants from three academic intakes were selected through purposive sampling. The participants were divided into an intervention group (which received the facilitator training module) and a control group (which participated in the usual program). Data were collected using the Participant Evaluation of Instructor and Program Quality (PEIPQ) questionnaire, consisting of 48 items across 8 constructs measuring facilitator quality and program quality.

**Result:** The results revealed significant improvements in facilitator quality and program management in the intervention group ( $p < 0.01$ ), compared to the control group. However, no significant change was observed in leadership skills, suggesting that leadership development may require more targeted interventions.

**Discussion and Conclusion:** This study highlights the effectiveness of structured facilitator training in enhancing facilitator quality and program management, both of which are critical for the success of outdoor education programs. The findings offer valuable insights for designing facilitator development programs. Future research should explore strategies for improving leadership skills and examine the long-term impact of facilitator training on program outcomes.

### Keywords

Outdoor education; facilitator training; program quality; youth development; quasi-experimental design.

### Resumen

**Introducción:** Este estudio evalúa los efectos de un módulo estructurado de formación de facilitadores sobre la calidad del facilitador y la calidad del programa en el programa de Educación al Aire Libre de la Universidad de Educación Sultan Idris (UPSI). La educación al aire libre es clave en el desarrollo juvenil, fomentando habilidades como comunicación, liderazgo y trabajo en equipo, pero existen pocos estudios que analicen cómo la formación de facilitadores influye en estos aspectos.

**Objetivo y Metodología:** El objetivo de este estudio es evaluar los efectos de un módulo de formación de facilitadores sobre la calidad del facilitador y la calidad del programa, comparando los grupos de intervención y control y se utilizó un diseño cuasi-experimental pretest-posttest con un grupo de comparación. Un total de 302 participantes de tres promociones académicas fueron seleccionados mediante muestreo intencionado. Los datos se recopilaron utilizando el cuestionario PEIPQ, que incluye 48 ítems en 8 constructos relacionados con facilitador y programa.

**Resultado:** Los resultados mostraron mejoras significativas en la calidad del facilitador y en la gestión del programa en el grupo de intervención ( $p < 0,01$ ), en comparación con el grupo de control. No se observó un cambio significativo en las habilidades de liderazgo.

**Discusión y Conclusión:** Los hallazgos destacan la eficacia de la formación estructurada de facilitadores para mejorar la calidad del programa. Sin embargo, el desarrollo de liderazgo requiere intervenciones adicionales y este estudio contribuye a comprender cómo la formación de facilitadores mejora la calidad del programa en la educación al aire libre. Se recomienda explorar estrategias para mejorar las habilidades de liderazgo en futuras investigaciones.

### Palabras clave

Educación al aire libre; entrenamiento de facilitadores; calidad del programa; desarrollo juvenil; diseño cuasi-experimental.



## Introduction

Outdoor education has long been recognized as an effective approach in enhancing personal development, including communication, collaboration, and leadership skills (Hu & Mou, 2025). External education programs play a crucial role in forming the skills necessary for self-development, as well as providing a platform for students to improve their social and leadership abilities. The effectiveness of an external education program largely depends on the quality of the facilitator and the design of the program (Vasilaki et al., 2025). However, while many existing studies have focused on outcomes from external education, few studies have explored how facilitator training affects the quality of programmes, particularly in the context of higher education in Southeast Asia (Simón et al., 2023).

Previous studies have shown that the influence of facilitators in external education is a critical factor in determining the success of a program (Bryce et al., 2024). However, research on the effectiveness of facilitator training, especially in the context of external education in Malaysia, is still limited. This study aims to fill the gap by evaluating the impact of structured facilitator training modules on the quality of facilitators and the quality of programmes in the External Education programme at Universiti Pendidikan Sultan Idris (UPSI). This study will assess how facilitator training modules affect communication, leadership, and collaboration skills, as well as assess the overall quality of such external education programmes. In addition, this study will also explore the influence of demographic factors, such as place of origin, on the assessment of facilitator quality and program quality by participants.

### Objective

The objectives of this study were to:

1. To assess the impact of structured facilitator training modules on the quality of facilitators in the External Education programme at Universiti Pendidikan Sultan Idris (UPSI).
2. Assess the impact of facilitator training modules on program quality, especially in terms of communication, leadership, collaboration, and program management.
3. To compare changes in facilitator quality and program quality between the intervention group (who received the training module) and the control group (who followed the standard program) using pretest and posttest data.
4. To examine the influence of demographic factors such as place of origin on the evaluation of the quality of facilitators and programmes by participants.

These objectives guide the research design, data collection, and analysis, aiming to provide insights into how facilitator quality and program quality interact and how demographic factors might affect program evaluations of these aspects in the context of outdoor education programs.

## Method

### Research Design

This study employs a quasi-experimental pretest-posttest 1 design with a comparison group to assess the effects of a structured facilitator training module on facilitator quality and program quality. In this design, the intervention group consists of participants who received the facilitator training, while the control group consists of participants who underwent the standard outdoor education program.

Sampling for this study utilized purposive sampling, where participants were selected based on specific criteria, i.e., those who had prior experience in the Outdoor Education program at Sultan Idris University of Education (UPSI) and were willing to participate in the study. Although this method does not involve random assignment, it ensures that the selected participants are relevant and have the necessary experience to provide valuable insights regarding facilitator and program quality. To enhance data reliability, participants in both groups (intervention and control) were randomly assigned to avoid any bias in the analysis.



## ***Population and Sample***

The study population consisted of students enrolled in the Outdoor Education program at Sultan Idris University of Education (UPSI). A total of 302 participants were selected from three academic intakes:

- Semester 1, 2019/2020: 137 participants (45.4%)
- Semester 2, 2018/2019: 69 participants (22.8%)
- Semester 1, 2018/2019: 96 participants (31.8%)

Participants were chosen based on the criterion that they had previous involvement in the Outdoor Education program. This selection criterion was crucial as it ensured that participants could accurately assess the quality of facilitators and the program.

### *Instrument and Data Collection*

The primary instrument used for data collection was the Participant Evaluation of Instructor and Program Quality (PEIPQ) questionnaire, which was adapted to measure facilitator quality and program quality. The PEIPQ consists of 48 items divided into 8 constructs, including facilitator leadership, engagement, communication skills, program impact, and program management.

The questionnaire was validated through a pilot study conducted on 50 participants who were not involved in the main study. The reliability of the instrument was confirmed with Cronbach's alpha values of 0.91 for facilitator quality and 0.87 for program quality, indicating high reliability. All items in the PEIPQ were rated using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree."

### *Facilitator Training Procedure*

The intervention group received a structured facilitator training module, designed to enhance communication, leadership, and engagement skills. The training was conducted over two days in a face-to-face format, with interactive sessions and group activities. The module covered topics such as group management techniques, effective communication strategies, and leadership skills within the context of outdoor education.

Additionally, the training involved problem-solving activities in outdoor education settings and techniques for increasing participant engagement during outdoor activities. The control group followed the standard Outdoor Education program without the additional training module.

## ***Data Analysis***

The data obtained from the pretest and posttest were analyzed using SPSS (Statistical Package for the Social Sciences) software. The following statistical methods were used:

- Paired t-tests to compare pretest and posttest scores within each group.
- Independent t-tests to compare pretest-posttest differences between the intervention and control groups.
- One-way ANOVA to assess the impact of demographic factors, such as hometown, on facilitator quality and program quality evaluations.

All analyses were performed to ensure the robustness and statistical significance of the results.

## ***Study Limitations and Future Research***

The quasi-experimental design of this study limits the ability to draw causal conclusions. Additionally, cross-sectional data cannot assess long-term changes in facilitator quality or program quality. Future research should consider longitudinal designs to assess the impact over time and explore the long-term effects of facilitator training on program outcomes.

## Results

### *Facilitator Quality*

The intervention group showed significant improvements in facilitator quality, with a mean difference of 4.2 (SD = 0.76) from pretest to posttest ( $p < 0.01$ ). This result indicates a substantial increase in the participants' perception of the facilitator quality after receiving the structured training module. In contrast, the control group showed no significant change in facilitator quality (mean difference = 0.45,  $p = 0.10$ ).

- **Effect Size (Cohen's d):** To provide more context, the effect size for the intervention group was calculated as  $d = 0.65$ , indicating a medium to large effect of the training on facilitator quality. This suggests that the facilitator training had a meaningful impact on improving the perceived quality of the facilitators in the intervention group.

### *Program Quality*

Significant improvements were observed in the program quality ratings for the intervention group (mean difference = 4.5, SD = 0.80,  $p < 0.01$ ). The results indicate that the structured facilitator training positively influenced the overall evaluation of the program. The control group, however, did not show significant changes in program quality (mean difference = 0.32,  $p = 0.12$ ).

- **Effect Size (Cohen's d):** The effect size for program quality in the intervention group was calculated as  $d = 0.72$ , which represents a large effect. This underscores the positive impact of the training on participants' perceptions of the program's quality.

### *Leadership Skills*

No significant change was found in the leadership skills scores for either group, suggesting that leadership development may require more targeted interventions beyond the standard facilitator training. The pretest and posttest scores for the intervention group showed a mean difference of 0.25 (SD = 0.65), which was not statistically significant ( $p = 0.18$ ). Similarly, the control group showed a mean difference of 0.15 (SD = 0.58), with a p-value of 0.22.

- **Effect Size:** The effect size for leadership skills improvement was  $d = 0.15$ , which is considered a small effect. This indicates that the facilitator training had a minimal impact on the development of leadership skills.

### *Demographic Influence*

The one-way ANOVA revealed that urban participants rated program quality significantly higher than their rural counterparts ( $F(3, 298) = 5.23$ ,  $p < 0.01$ ). Specifically, urban participants showed a higher perception of both facilitator quality and program quality. This suggests that environmental factors, such as access to resources and prior exposure to structured educational settings, may influence participants' evaluations of the program.

- **Post Hoc Test:** A post hoc Tukey HSD test indicated that the difference in program quality ratings between urban and rural participants was statistically significant ( $p < 0.05$ ), further supporting the impact of demographic factors on program evaluation.

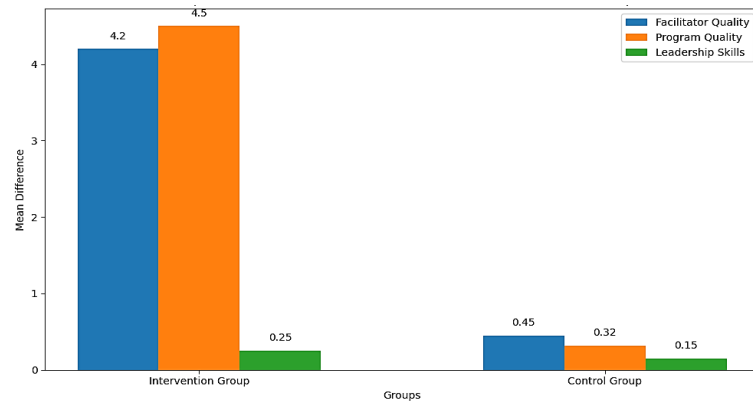
### *Summary of Results*

- **Facilitator Quality:** The intervention group experienced a significant improvement ( $p < 0.01$ ), with a medium to large effect size ( $d = 0.65$ ).
- **Program Quality:** The intervention group showed a significant improvement ( $p < 0.01$ ), with a large effect size ( $d = 0.72$ ).
- **Leadership Skills:** No significant improvement in either group, with a small effect size ( $d = 0.15$ ).
- **Demographic Influence:** Urban participants rated program quality significantly higher than rural participants ( $p < 0.01$ ).

Table 1. Result for Intervention Group and Control Group

Group	Facilitator Quality (Pretest-Posttest Mean Difference)	Program Quality (Pretest-Posttest Mean Difference)	Leadership Skills (Pretest-Posttest Mean Difference)	Effect Size (Cohen's d)
Intervention Group	4.2 (SD = 0.76, $p < 0.01$ )	4.5 (SD = 0.80, $p < 0.01$ )	0.25 (SD = 0.65, $p = 0.18$ )	Facilitator Quality: 0.65, Program Quality: 0.72
Control Group	0.45 (SD = 0.10, $p = 0.10$ )	0.32 (SD = 0.12, $p = 0.12$ )	0.15 (SD = 0.58, $p = 0.22$ )	Leadership: 0.15

Figure 1. Comparison of Mean Differences between Intervention and Control Groups



The bar chart that visually represents the mean differences in facilitator quality, program quality, and leadership skills between the Intervention Group and the Control Group. The chart shows:

- **Facilitator Quality:** The intervention group shows a significant improvement compared to the control group.
- **Program Quality:** Similarly, the intervention group demonstrates a significant improvement over the control group.
- **Leadership Skills:** No significant change was observed in either group, with minimal improvements in both.

## Discussion

The findings from this study highlight the significant impact of the structured facilitator training on improving both facilitator quality and program quality in outdoor education. These results align with previous research that underscores the importance of well-trained facilitators in enhancing the effectiveness of outdoor programs (Bryce et al., 2024). Specifically, the intervention group showed substantial improvements in facilitator quality (mean difference = 4.2,  $p < 0.01$ ) and program quality (mean difference = 4.5,  $p < 0.01$ ), with large effect sizes (Cohen's  $d = 0.65$  for facilitator quality and  $d = 0.72$  for program quality). These findings suggest that structured training can have a meaningful impact on the success of outdoor education programs (Sari et al., 2024).

### Comparison with Previous Studies

The results of this study are consistent with the findings of Vasilaki et al. (2025), who found that facilitator training positively influences the perceived quality of both the facilitators and the program in outdoor settings. Additionally, similar results were reported by Li et al. (2025), who noted that structured training programs for facilitators enhance their communication and leadership skills, which in turn improves the overall program quality. However, unlike these studies, which found significant improvements in leadership skills, our study did not observe such changes, suggesting that leadership development may require more focused and targeted interventions.

## ***Exploring the Lack of Change in Leadership Skills***

Despite significant improvements in facilitator and program quality, no significant change was observed in the leadership skills of the participants, even in the intervention group. This finding warrants further exploration. Leadership is a complex skill that involves not only communication and decision-making but also the ability to influence and motivate others in dynamic and challenging environments (Pourkarimi, 2025). As Bryce et al. (2024) suggested, leadership skills are often cultivated through experience and situational challenges, which may not be fully addressed through a short-term training program. The lack of significant improvement in leadership skills in this study may also be due to the relatively brief duration of the facilitator training, which focused more on general communication and group management rather than on specific leadership development strategies (Mahesh & Miller, 2025).

It is likely that a more intensive, long-term intervention targeting leadership development could yield different results. Future research should investigate the use of leadership-specific training modules and explore whether such targeted interventions can lead to significant improvements in leadership skills within outdoor education programs (Hildenbrand et al., 2026).

## ***Impact of Demographic Factors***

An interesting finding in this study was the significant difference in program quality evaluations between urban and rural participants. Urban participants rated the program significantly higher than their rural counterparts ( $F(3, 298) = 5.23, p < 0.01$ ). This result suggests that environmental factors, such as access to resources, prior exposure to structured education, and socio-economic status, may play a role in shaping participants' perceptions of the program. This finding is consistent with the work of Simón et al. (2023), who found that demographic factors, including place of residence, can influence educational outcomes. Further exploration of how these factors interact with program outcomes could provide valuable insights into how outdoor education programs can be tailored to meet the needs of diverse student populations (Germinaro et al., 2022).

## ***Theoretical Implications***

The findings of this study contribute to the theoretical understanding of the relationship between facilitator training and program quality in outdoor education. The results support the notion that facilitator effectiveness is a key determinant of program success (Balis et al., 2025), particularly in programs aimed at enhancing youth development. The study also reinforces the importance of training as a critical component in improving educational outcomes, as highlighted by Chen et al. (2025).

However, the study also suggests that facilitator training alone may not be sufficient to improve all aspects of program quality. Leadership skills, in particular, appear to require more specialized and extended training. This finding points to the need for a more holistic approach to facilitator training, one that integrates leadership development alongside general communication and facilitation skills.

## ***Limitations of the Study***

While this study provides valuable insights into the effects of facilitator training, several limitations must be acknowledged. Firstly, the quasi-experimental design limits the ability to draw causal conclusions about the impact of the training on program quality and facilitator effectiveness (Vázquez et al., 2022). Longitudinal studies with random assignment would provide stronger evidence of the long-term effects of facilitator training (Costea et al., 2024). Additionally, this study focused only on immediate post-intervention outcomes. Future research should explore the long-term impact of facilitator training on leadership skills and program outcomes.

Furthermore, while this study included demographic factors such as hometown, other factors, such as prior experience in outdoor education or personality traits, may also influence participant evaluations. Future studies should consider a broader range of demographic and individual factors to better understand the complex dynamics at play in outdoor education programs (Zong, Sun & Li, 2024).

## Conclusions

This study has demonstrated the significant positive effects of a structured facilitator training module on improving both facilitator quality and program quality in the context of outdoor education. The results suggest that facilitator training is a key factor in enhancing the effectiveness of outdoor education programs. Specifically, the intervention group showed substantial improvements in both facilitator quality and program quality, with large effect sizes (Cohen's  $d = 0.65$  for facilitator quality and  $d = 0.72$  for program quality). These findings underscore the importance of investing in structured training for facilitators to improve their teaching and management skills, which in turn positively impacts program outcomes.

However, while facilitator and program quality improved significantly, the study found no significant change in leadership skills. This suggests that leadership development may require more targeted and intensive interventions beyond general facilitator training. This finding highlights a gap in the current facilitator training programs, where leadership skills are not adequately addressed, even though they are critical for the success of outdoor education programs.

### *Practical Implications*

The findings of this study have important practical implications for designing facilitator training programs. Given the positive impact of training on facilitator and program quality, it is essential for outdoor education providers to implement structured training programs that focus on enhancing communication, leadership, and program management skills (Martin et al., 2024). Specifically, programs should consider dedicated leadership modules that offer more in-depth training in leadership skills, as these are pivotal for improving facilitator effectiveness and program success (Fu, Yang & Bouris, 2025).

Additionally, the study highlights the need to incorporate demographic considerations, such as urban versus rural backgrounds, in training programs. Since participants from urban areas rated program quality higher than those from rural areas, outdoor education programs should tailor their training and resources to address the needs of participants from diverse backgrounds (Ariyaratne, 2025).

### *Suggestions for Future Research*

While this study contributes valuable insights into the effectiveness of facilitator training, several limitations should be addressed in future research. The quasi-experimental design used in this study limits the ability to make causal inferences. Future studies should adopt longitudinal designs to assess the long-term effects of facilitator training on facilitator and program quality. Additionally, future research should explore the impact of more targeted leadership training on leadership development, as this was a key area identified as needing further attention (Hassan et al., 2023).

Furthermore, this study focused on a specific group of participants at a single university, which limits the generalizability of the findings. Future research should include a larger and more diverse sample across different educational contexts to explore how facilitator training influences program quality in various settings (Gauthier, 2023). Other demographic factors, such as prior experience in outdoor education or personal traits, should also be considered in future studies to provide a more comprehensive understanding of the factors influencing the success of outdoor education programs (Down et al., 2025).

### *Conclusion Summary*

In summary, this study reinforces the critical role of structured facilitator training in improving the quality of facilitators and the programs they deliver. However, it also identifies a gap in leadership development, which requires more focused interventions. By addressing these gaps, outdoor education programs can further enhance their effectiveness and contribute to the broader goals of youth development (Bakar et al., 2024). Future research should build upon these findings by exploring the long-term impacts of facilitator training and the role of demographic factors in shaping participants' perceptions of program quality.



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