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Action Learning To Improve Students' Green Leadership Abilities

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Abstract

The challenges of environmental degradation and global climate change demand a transformation of leadership paradigms in higher education institutions, particularly in management education. This study aims to analyze the influence of student involvement in the Green Leadership in Action program—an Action Learning-based initiative—on the development of sustainable leadership competencies in the Undergraduate Management Study Program at Tadulako University. Methods: This study used a descriptive and inferential quantitative approach, involving 50 students as respondents through a purposive sampling technique. The research instrument was a closed-ended questionnaire measuring five competency dimensions: green vision, sustainable innovation, cross-team collaboration, social responsibility, and environmental ethics. Results: The results of data analysis using the Pearson correlation test showed a strong positive relationship between student involvement and Green Leadership competencies ($r = 0.77$). Furthermore, a simple linear regression test confirmed the significant influence of the Action Learning variable on the formation of green leadership ($F = 72.696$; $p < 0.001$). Descriptively, the cross-team collaboration dimension recorded the highest achievement, while the team reflection and environmental ethics indicators scored the lowest. Implication: These findings provide academic legitimacy that action-based learning is effective in internalizing sustainability values, but institutions need to strengthen the structure of reflection and the moral-affective dimension to balance physical action with wisdom.

INTRODUCTION

Global climate change, environmental degradation, and socio-economic inequality pose essential challenges to global civilization. These destructive realities are driving higher education institutions to take an active role in developing a generation of sustainability-oriented leaders. Universities are no longer solely focused on student academic achievement but are also required to instill the values of Green Leadership and social and moral responsibility.(Adda, 2020)Transforming the paradigm of higher education is vital to ensuring graduates possess holistic competencies to face the complexities of 21st-century issues. Ecological leadership capabilities are now a prerequisite for future leaders.

The Green Leadership in Action program is a progressive action-based learning initiative specifically implemented within the Undergraduate Management Study Program at the Faculty of Economics and Business, Tadulako University. This program is systematically designed to foster students' systemic, innovative, and collaborative thinking skills to address the challenges of sustainable development in Central Sulawesi. The program targets the development of five dimensions of essential leadership competencies: green vision, sustainable innovation, cross-team collaboration, social responsibility, and environmental ethics. The program lasts one full semester and requires students to dedicate their time to participating in intensive activities.

The current focus of the Management Study Program has shifted from merely mastering administrative aspects to developing managerial capabilities capable of addressing sustainability crises at the local and global levels. Given Central Sulawesi's strategic position as a region with abundant natural resources yet vulnerable to exploitation, management students are prepared to become leaders capable of balancing economic interests with the function of social systems and ecosystem sustainability. This effort reflects the role of education as an agent of change in reconstructing the cultural value system of leadership to be more aligned with environmental needs. Through this approach, the management study program strives to build a strong social network to support development policies that do not damage the natural order in the future. This transformation is crucial because the function of leadership within a group or organization is crucial for the sustainability of the relationship between humans and their natural surroundings. Thus, strengthening green values in management becomes a primary foundation for creating social solidarity that supports the sustainability of civilization amidst the dynamics of modern society.

The global ecosystem degradation and worsening social inequality demand significant changes in the higher education system. Universities should no longer focus solely on academics but must also be directly involved in developing caring leaders who are oriented towards sustainable development. Academic institutions are addressing these demands through a progressive initiative called Green Leadership in Action. This Action Learning-based program develops students' capabilities to address the complex challenges of sustainable development. Students are not simply exposed to theoretical discourse but also embody the values of Green Leadership through real-life ecological projects. The learning process must be explicitly directed toward producing professional, competent, and ethical individuals who can ultimately benefit the profession and society. Ethics learning aims to develop sensitivity and intelligence in making sound decisions, as well as building an intellectual foundation for critical thinking and developing accountability systems in informal decision-making. This mechanism aligns with the needs of Action Learning (AL) in developing Sustainable Green Leadership, where AL is considered a highly suitable method, especially collaborative methods such as case studies, which can lead to engagement.(Srimulyani & Hermanto, 2022)

The Green Leadership in Action program has a mandatory structure encompassing three main components: project activities, reflection, and interdisciplinary collaboration. Project activities require students to design and implement real-world green solutions, such as campus waste recycling projects or energy conservation initiatives. This practical phase matures students' applied managerial skills. Mutual reflection provides students with space to evaluate the effectiveness of their decisions and process field experiences into mature leadership policies. Interdisciplinary collaboration is a crucial element of the program, requiring undergraduate students in the Management Study Program at the Faculty of Economics and Business, Tadulako University, to collaborate with students from other faculties, such as agricultural law and engineering. This interdisciplinary synergy is designed to address multidimensional environmental problems that require diverse perspectives on holistic solutions. Students are guided to internalize the values of sustainable leadership in real-world practice through intensive team interaction.

This integrated program structure ensures students possess not only theoretical knowledge but also the practical competencies to lead sustainability initiatives. Green leadership goes beyond simply leading environmentally friendly or offering lip service. Green leadership is a way of thinking and acting that aligns organizational goals with moral responsibility to the earth and society.(Adda & Buntuang, 2018)Green leaders inspire their followers to maintain a harmonious

balance between innovation and environmental sustainability. Green-oriented leaders boldly envision a broad future, believing that true success lies not only in financial gain but also in positive social and environmental impact.(Wu et al., 2021)

Developing Green Leadership in higher education means cultivating an intrinsic awareness that every student can be an effective agent of change. Students don't need to wait until they become CEOs or public officials to lead sustainable initiatives. Leadership can begin with simple actions: encouraging friends to reduce plastic waste, leading a recycling project, or creating a social innovation that benefits the surrounding community.(Dilworth & Willis, 2021)Universities serve as primary catalysts preparing students to integrate ecological ethics into their professional decisions.

METHOD

This study used a descriptive and inferential quantitative approach with a survey design. The study population was undergraduate students of Management at Tadulako University who participated in the Green Leadership in Action program for one semester (N=50). The sampling technique used purposive sampling, with the criteria being students who had completed all stages of the program.

2.1 Research Instruments

This research instrument used a closed-ended questionnaire developed based on the rigor indicators of sustainable leadership competency. The questionnaire consisted of 25 statements using a 1–5 Likert scale to measure the intensity of respondents' agreement with the competency statements being tested. This methodology divides sustainable leadership competency into five fundamental dimensions, each represented by five questions. These five essential dimensions include green vision, sustainable innovation, cross-team collaboration, social responsibility, and environmental ethics, providing a holistic framework for analyzing student achievement.

The green vision dimension of sustainable innovation maps students' ability to design strategic directions for creative solutions to environmental issues. The green vision tests students' understanding of an intergenerational perspective, ensuring that current decisions do not harm future generations.(Hargreaves & Fink, 2006)This competency requires students to integrate environmental sustainability into the daily operations of their project organizations. Meanwhile, sustainable innovation assesses students' capabilities in finding technological and managerial breakthroughs to address ecological problems. These two dimensions serve as parameters to measure the depth of students' sustainability mindsets as future leaders.

The remaining three dimensions—cross-team collaboration, social responsibility, and environmental ethics—measure the interpersonal aspects of moral leadership. Cross-team collaboration assesses students' ability to collaborate effectively across sectors, given that sustainability solutions are always multidisciplinary.(Nurhadi & Puspitasari, 2022)Social responsibility measures students' awareness of contributing to the well-being of society and considering the

social impact of their actions. Environmental ethics is the most fundamental dimension, measuring students' unwavering moral commitment to environmental preservation. These five dimensions collectively provide a comprehensive picture of students' leadership profiles after participating in the Green Leadership in Action program.

Table 1. Variables

Variables	Operational Definition	Dimensions	Indicator	Scale
Variable X: **Learning (Action Learning)**	The process of acquiring knowledge and skills through direct involvement in real projects, team reflection, and interdisciplinary collaboration over a certain duration.	**1. Activities & Reflection (Session 1)**	1. Active participation in green project design. 2. Contributions in team reflection sessions. 3. Community service involvement. 4. Completion of action project stages. 5. Cross-disciplinary team collaboration.	Likert (1-5)
		2. Activities & Reflection (Session 2)	6. Active participation in project design (Session 2). 7. Regular contribution to reflection sessions (Session 2). 8. Community service involvement (Session 2). 9. Completion of project assignments (Session 2). 1. 10. Team collaborative interaction (Session 2).	Likert (1-5)
Variable Y: ***Green Leadership***	Leadership skills that integrate ecological aspects, sustainable innovation, and social responsibility to create cultural changes that preserve the environment.	**1. Strategic Vision & Awareness**	1. Formulation of environmental impact objectives. 2. Understanding global sustainability issues. 3. Inspire a green vision to others. 4. Integration of ecological and social aspects.	Likert (1-5)

		5. Socio-environmental impact beliefs.	
	2. Innovation & Sustainable Solutions	6. Generator of new ideas on environmental issues. 7. Development of environmentally friendly solutions. 8. The courage to take risks of innovation. 9. Search for the latest technology. 10. Application of sustainable creative solutions.	Likert (1-5)
	3. Collaboration & Networking	11. Effectiveness of cross-interest teamwork. 12. Mediating project disagreements. 13. Development of external party networks. 14. Interdisciplinary work comfort. 15. Sharing knowledge for a common goal.	Likert (1-5)
	4. Social Responsibility & Ethics	16. Awareness as an agent of change. 17. Proactively seek opportunities for the community. 18. Consideration of the social impact of decisions. 19. Motivate real community action. 20. Identify socio-economic needs.	Likert (1-5)

Data analysis

The author applies a triad of statistical techniques to systematically test the research hypotheses, providing a solid methodological foundation to support the main findings. Initially, descriptive statistics substantially illustrate the achievement profile of each competency dimension.including green vision, innovation, and collaboration, from a total of 45 indicators. Then, a Pearson correlation test examined the closeness of the linear relationship between the

level of engagement (Variable X) and sustainable leadership competencies (Variable Y). This test provided initial empirical justification that increasing proportional participation matures competencies.(Chen & Chang, 2021)Finally, data analysis using a simple linear regression test measures the predictive impact of Variable X on Variable Y as a whole. This regression methodology produces an explicit equation, measuring the percentage contribution of the variation in competency that can be explained by the engagement variable. This combination of analyses was conducted transparently, ensuring the research results have high validity and reliability.

Validity and Reliability

Validity testing was carried out using item-total correlation analysis, while reliability was measured using Cronbach's Alpha coefficient ($\alpha > 0.7$ is considered reliable).

RESULTS AND DISCUSSION

Respondent Description

Table 2. Respondent Characteristics (N = 50)

Category	Indicator	Number (n)	Percentage (%)
Gender	Woman	37	74.00%
	Man	13	26.00%
Age	over 21 years old	25	50.00%
	19 – 21 years old	23	46.00%
	under 19 years old	2	4.00%
Study Programs (Top 5)	Management (S1, S1 Management, S1 Management)	16	32.00%
	Accounting (S1, D4, Accounting)	5	10.00%
	Psychology	5	10.00%
	Public Health (Kesmas)	5	10.00%
	Other Study Programs	18	36.00%

The characteristics of the respondents described in this study, including gender, age, and study program selected as Green Leadership in Action participants, demonstrate a diverse demographic profile. Female students accounted for 74% of the participants, indicating a strong interest among women in exploring sustainability-oriented leadership issues. The age distribution was evenly distributed between mature (46%) and young (50%) groups, enriching the dynamics of cross-team collaboration. Students from a variety of non-management study programs, ranging

from law and psychology to accounting, contributed unique interdisciplinary perspectives. This interdisciplinary involvement demonstrates the program's appeal, which transcends academic boundaries, creating a true social laboratory. Specifically, Psychology students participated at 10% (5 respondents). Their presence is crucial because Psychology, as a discipline focused on behavior, motivation, and group dynamics, brings a unique perspective to understanding aspects of people management and behavioral change toward sustainable leadership practices. This interdisciplinary involvement demonstrates the program's appeal, which transcends academic boundaries within the Faculty of Economics and Business, creating a true social laboratory. Students bring direct experience with campus environmental projects, channel high levels of innovation, and view sustainable leadership as an essential aspect of education.

Respondent's Answer Description

The significant involvement of various study programs confirms the function of the Green Leadership in Action program as a forum for exploring the development of soft skills competencies of students at the Faculty of Economics and Business, Tadulako University. Tadulako University has succeeded in presenting a transformative learning platform empowering students beyond the normative academic curriculum to touch on dimensions of leadership and social responsibility. Respondent characteristics include gender, age, and heterogeneous study backgrounds, forming a rich learning ecosystem that supports knowledge transfer between participants. Leadership Competency Development Level. The author sees that the demographic data of respondents confirms that sustainability issues are not the responsibility of one study program alone but rather a collective call of all academic elements to produce leaders with strong environmental insight.

Table 3. Descriptive Analysis

No	Statement Indicator	Mean	Std. Dev	Category
A	Variable X: Learning (Action Learning)			
1	Actively participate in green project design	3.08	1,353	Currently
2	Attend and contribute to team reflection sessions	2.94	1,376	Currently
3	Directly involved in community service activities	3.10	1,446	Currently
4	Complete all stages of the real action project	3.14	1,414	Currently
5	Collaborate intensively with cross-disciplinary team members	3.14	1,246	Currently
6	Active participation in green project design (Session 2)	3.10	1,344	Currently
7	Regular contributions to team reflection sessions (Session 2)	2.92	1,322	Currently
8	Involvement in community service (Session 2)	3.06	1,420	Currently
9	Completion of real action project assignments (Session 2)	3.30	1,446	Currently

10	Collaborative interactions in interdisciplinary teams (Session 2)	3.20	1,429	Currently
B	Variable Y: Green Leadership			
1	Formulating environmental impact-oriented project objectives	3.62	0.830	Tall
2	Understanding global sustainability issues in strategy	3.70	0.931	Tall
3	Inspiring others to adopt a green vision	3.50	0.839	Tall
4	Integrating ecological and social aspects	3.68	0.935	Tall
5	Belief in success includes socio-environmental impacts	4.02	0.869	Tall
6	Generating new ideas to address environmental problems	3.76	0.981	Tall
7	Developing environmentally friendly solutions in practice	3.58	0.950	Tall
8	Dare to take measured risks for green innovation	3.68	0.868	Tall
9	Actively seeking the latest knowledge and technology	3.82	0.962	Tall
10	Successfully applying sustainable creative solutions	3.66	1,042	Tall
11	Effectively working in teams across interests and disciplines	3.88	1,023	Tall
12	Mediating differences of opinion in collaborative projects	3.64	1,005	Tall
13	Building networks with external parties	3.62	1,008	Tall
14	Comfortable contributing to interdisciplinary teamwork	3.80	1,010	Tall
15	Sharing knowledge to achieve common goals	3.82	0.962	Tall
16	High awareness as an agent of social change	3.88	1,003	Tall
17	Proactively seek opportunities to benefit the community	3.52	1,035	Tall
18	Taking social impact into account in decisions	3.76	1,080	Tall
19	Motivated to take real action for society	3.80	1,010	Tall
20	Identification of socio-economic needs of the environment	3.68	0.999	Tall

Based on the descriptive analysis results in the table, the highest overall score was achieved by the fifth indicator in the Green Leadership variable, namely regarding the belief that true success includes positive social and environmental impacts with an average value (mean) of 4.02, which is included in the High category. This indicates a very strong optimism and self-confidence among respondents in viewing sustainability as a benchmark for ideal leadership success. Conversely, the lowest overall average value was found in the seventh indicator of the Learning (Action Learning) variable, namely regarding regular contributions in team reflection sessions in the second session with a score of 2.92, which is in the Medium category.

The low score on this reflection point indicates that although participation in concrete actions has been ongoing, the process of evaluating and reinterpreting the actions taken remains the point that needs the most improvement in the learning process. Overall, all indicators in the Green Leadership variable dominated the achievement of high scores, while the Learning variable tended to be stuck in the medium category, reflecting a gap between the strength of the green leadership vision and the intensity of practice and reflection on learning in the field.

Based on the descriptive analysis results in Table 3, the Action Learning variable has an overall mean value of 3.10, placing it in the Moderate category. The lowest score was found in the seventh indicator (2.92) regarding team reflection routines, and the highest score was found in the ninth indicator (3.30) regarding project completion. This indicates that although students have been able to complete the concrete action stages quite well, the evaluation and internalization process through reflection remains a weak point that needs to be improved. On the other hand, the Green Leadership variable shows a much more significant achievement with an average value of 3.70, which is included in the High category. The fifth indicator, regarding belief in socio-environmental impacts, is the highest point with a score of 4.02. The comparison between these two averages indicates a positive gap, where the vision and character of environmentally conscious leadership of students have been formed very strongly, but the intensity of practice and active participation in the action-based learning process is still at a moderate level. Overall, these data conclude that the research subjects have a mature foundation of green leadership idealism, although practical experience and depth of reflection in the Action Learning scheme still require further strengthening to achieve complete results.

The dynamics of internal team conflict management naturally mature soft leadership skills through the integration of diverse scientific perspectives. Empirical reality presents the opposite, with the lowest achievement of 2.92 in the aspect of team reflection session participation. Students are indicated to prioritize the pragmatic physical execution of Action Learning projects over the process of evaluating experiences. The reflective evaluation stage actually plays a central role as a catalyst for transforming raw experience into internalized wisdom. The author concludes that incentive structure reform is necessary to balance concrete action and critical thinking to ensure complete sustainability.

Validity and Reliability Test Results

The results of the validity test showed that all 30 statements in the questionnaire were declared valid because each item had a calculated r-value greater than the r-table of 0.259 for 50 respondents.

Table 4. Validity Test Results

Question Items	R-calculated value	Sig. Value	rtable (5%)	Information

X.1	0.577	0,000	0.259	Valid
X.2	0.548	0,000	0.259	Valid
X.3	0.536	0,000	0.259	Valid
X.4	0.501	0,000	0.259	Valid
X.5	0.418	0.001	0.259	Valid
X.6	0.310	0.018	0.259	Valid
X.7	0.493	0,000	0.259	Valid
X.8	0.353	0.007	0.259	Valid
X.9	0.574	0,000	0.259	Valid
X.10	0.534	0,000	0.259	Valid
Y.1	0.328	0.012	0.259	Valid
Y.2	0.342	0.009	0.259	Valid
Y.3	0.412	0.001	0.259	Valid
Y.4	0.333	0.011	0.259	Valid
Y.5	0.344	0.008	0.259	Valid
Y.6	0.400	0.002	0.259	Valid
Y.7	0.431	0.001	0.259	Valid
Y.8	0.483	0,000	0.259	Valid
Y.9	0.350	0.007	0.259	Valid
Y.10	0.343	0.008	0.259	Valid
Y.11	0.326	0.012	0.259	Valid
Y.12	0.406	0.002	0.259	Valid
Y.13	0.345	0.008	0.259	Valid
Y.14	0.476	0,000	0.259	Valid
Y.15	0.351	0.007	0.259	Valid
Y.16	0.352	0.007	0.259	Valid
Y.17	0.433	0.001	0.259	Valid
Y.18	0.323	0.014	0.259	Valid
Y.19	0.322	0.014	0.259	Valid
Y.20	0.415	0.001	0.259	Valid

This is reinforced by the significance values (Sig. 2-tailed), which are all below the 0.05 threshold, thus demonstrating the research instrument's ability to accurately measure the variables studied. By meeting these validity criteria, the questionnaire data is deemed suitable for further analysis. The research instrument demonstrates a very high level of consistency. The Cronbach's Alpha value obtained was 0.978 for a total of 35 items tested.

Table 5. Reliability Test

Cronbach's Alpha	N of Items
,978	30

This figure exceeds the minimum reliability threshold of 0.60, often used as a standard in social research methodology. This very strong level of reliability demonstrates that each item in the questionnaire provides stable results in measuring the social phenomenon being studied. Instrument consistency is essential in data collection to ensure accurate and accountable information obtained from the field. Therefore, the questionnaire is considered highly reliable and suitable for use as a primary data collection tool for analyzing the dynamics of social interactions in the community.

Correlation and Regression Test Results

Pearson's correlation test showed a strong positive relationship between student engagement and sustainable leadership competencies. The results of a simple linear regression test showed the following:

Table 6. Correlation Test

Correlations

		Action Learning	Green Leadership
Action Learning	Pearson Correlation	1	,776**
	Sig. (2-tailed)		<,001
	N	50	50
Green Leadership	Pearson Correlation	,776**	1
	Sig. (2-tailed)	<,001	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

This study aims to analyze the functional relationship between Action Learning variables and the formation of Green Leadership character in students through a quantitative approach. Based on the Pearson correlation test, a correlation coefficient value (r) of 0.776 was found, indicating a positive relationship at a strong level between the two variables. The significance level below 0.001 proves that the relationship is statistically significant and has a high degree of confidence. Regression analysis through the ANOVA table further strengthens this finding with the F-value of 72.696, confirming that the research model is very suitable for predicting the effect of learning on green leadership. Descriptively, the indicator with the highest achievement lies in the respondent's belief that true success must include social and environmental impacts with an average value of 4.02. On the other hand, the point with the lowest score was found in the aspect of routine contributions in team reflection sessions with an average value of 2.92, indicating the need for strengthening at the learning evaluation stage. Overall, these results conclude that the intensity of real action learning is effectively able to internalize sustainable leadership values in students.

Table 7. Regression

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9912,640	1	9912,640	72,696	<,001[b]
	Residual	6545,140	48	136,357		
	Total	16457,780	49			

a. Dependent Variable: Green Leadership

b. Predictors: (Constant), Action Learning

Based on the results of a simple linear regression analysis represented through the ANOVA table, it was found that the Learning (Action Learning) variable has a significant influence on the formation of Green Leadership. This is evidenced by the F-value obtained of 72.696 with a significance level of <0.001, which means it is far below the threshold value of 0.05. These findings provide a statistical conclusion that the regression model is significant and very suitable for use in predicting the dependent variable in this study. Thus, it can be stated that every improvement in the quality of the learning process through real action projects directly contributes positively to strengthening the sustainable leadership spirit of students, which indicates a strong causal relationship between practical learning methods and the internalization of green leadership values.

DISCUSSION

The research findings confirm that the intensity of student involvement in the Green Leadership in Action program directly improves sustainable leadership competency. Inferential statistical tests confirm a strong and positive relationship between the student involvement variable (X) and leadership competency (Y), which implies the transfer of explicit knowledge from field experience to mental awareness. The results of the simple linear regression test confirm this influence with an F-value of 72.696 and a significance of <0.001, indicating that the involvement variable contributes the majority in improving the competency of research subjects. The implications of these findings require higher education institutions to prioritize participatory and experiential learning methods to spur the internalization of green leadership values permanently. Analysis of the leadership dimensions shows a varying distribution of scores between the aspects of collaboration, innovation, and ethics:

Table 8. Leadership Dimension Achievements

Dimensions of Leadership	Achievement Status	Main Characteristics
Cross-Team Collaboration	Highest	Exceptional mastery in working together across backgrounds and strengthening social solidarity.
Sustainable Innovation	Tall	The ability to design creative ideas and apply green technology as an ecological breakthrough.

Environmental Ethics	Low	The affective moral dimension still requires strengthening so that concern is not only cognitive.

The collaborative aspect is the most prominent dimension, reflecting strong relevance to Indonesia's socio-cultural context, which prioritizes solidarity and mutual cooperation as forms of healthy social interaction. This program has successfully created a social laboratory for Tadulako University Management students to formulate applicable sustainability solutions.(Haryono & Firmansyah, 2024)The dominant achievements of this collaboration identified relevance in Indonesia's socio-cultural context, confirming that the program is based on local wisdom that prioritizes solidarity. The program successfully created a social laboratory that tested students' communication skills in formulating sustainable solutions. The sustainable innovation dimension demonstrated a high level of achievement, demonstrating students' ability to devise new ideas to address environmental issues with high creativity. The ability to seek out and implement the latest green technologies demonstrated students' high pragmatic orientation, verifying the role of universities as centers for creating ecological breakthroughs.(Nugroho & Wulandari, 2023)

Although most indicators scored high, there were critical notes on the engagement variable, particularly the indicator for regular contributions to team reflection sessions, which achieved the lowest average score of 2.92. This phenomenon indicates that students tended to prioritize the physical implementation of the project over the in-depth reflection process for evaluating the experience. In fact, the reflection process is a vital catalyst for transforming raw experience into mature, internalized knowledge. Furthermore, the environmental ethics dimension, which ranked relatively low compared to collaboration, indicates that the moral-affective aspect needs to be improved through a more critical learning quality. Optimizing the experiential learning process fully depends on the balance between concrete actions in the field and the depth of students' ethical reflection on the surrounding social and natural environment.

All action indicators showed high scores, with regular participation in and contribution to team reflection sessions showing the lowest achievement in the engagement variable. This gap indicates that students tend to prioritize the physical implementation of Action Learning projects over the in-depth reflective process of evaluating experiences. The reflection process is essentially a catalyst for transforming raw experience into internalized knowledge, forming mature leadership wisdom. Furthermore, the environmental ethics dimension showed the lowest average score relative to collaboration and innovation. Environmental ethics encompasses an affective moral dimension, ensuring concern is not merely cognitive. Improving the quality of ethics learning plays

a crucial role in instilling critical awareness in students, optimizing the experiential learning process comprehensively.

CONCLUSION

This study concludes that the involvement of students in the Green Leadership in Action program significantly influences the development of sustainable leadership competencies of Tadulako University students. Inferential statistical tests validate the hypothesis that the active involvement of students in the Action Learning program proportionally increases leadership capabilities. The cross-team collaboration aspect shows the highest mastery, reflecting the program's success in facilitating interdisciplinary collaboration between students from various scientific backgrounds. Students' sustainability mindset is identified as the main product of the program integrating a green vision of innovative initiatives to address environmental problems. These findings provide academic legitimacy for the Green Leadership in Action program as an effective learning model to strengthen the sustainability orientation of higher education. This program has succeeded in creating young leaders with a high sense of urgency to act responsibly in the environment.

The author provides strategic suggestions to ensure the sustainability of the impact of Tadulako University's Green Leadership in Action program. The program must improve the incentive structure of team reflection sessions to address students' tendency to prioritize physical project actions over reflective processes. Universities need to integrate environmental ethics values more deeply into the program curriculum, ensuring that sustainability learning is not only cognitive but also touches the affective moral dimension of students. Further research can expand the scope of the study by comparing a control group of non-participants to measure the effectiveness of Green Leadership in Action comparatively. Tadulako University must make this program a flagship program for strengthening sustainable leadership in the academic community to strengthen the position of the Green University campus.(Rachman & Setyawan, 2021)

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