A Study on Effective Leadership among Faculty in the Mechanical Engineering Department at NEUST Sumacab Campus Basis for Enhancing Teamwork

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Abstract- ***This study aims to explore the leadership styles and practices exhibited by faculty members in the Mechanical Engineering Department at NEUST-Sumacab Campus and to assess how these influence teamwork and collaboration. Generally, this aims to study Effective Leadership Among Faculty in the Mechanical Engineering Department at NEUST-Sumacab Campus: Basis for Enhancing Teamwork. Specifically, it sought to answer the following questions: How may the respondent's profile be described in terms of age, sex, educational attainment, occupation, and length of service in the department? How may the faculty of Mechanical Engineering Department describe leadership in terms of influence and power? How may the effective leadership among faculty be measured in terms of decision-making, conflict resolution, motivation, and delegation? What challenges of faculty members in experiencing effective leadership within the department? Faculty highlighted issues such as poor communication, inconsistent decision-making, personal biases, and micromanagement, and suggested active listening, feedback, and structured goals.***

Index Terms- ***Effective Leadership, Faculty Collaboration, Teamwork, Decision-Making, Communication***

I.INTRODUCTION

Effective leadership is essential for fostering a productive and collaborative work environment, especially within academic departments that face complex challenges and require coordinated efforts among faculty members. In the Mechanical Engineering Department at NEUST-Sumacab Campus, strong leadership is critical in guiding faculty toward shared goals, encouraging teamwork, and ensuring the successful delivery of quality education and research outputs. Leadership among faculty members is not only about managing tasks but also about inspiring colleagues, facilitating open communication, and making sound decisions that benefit the entire department. Previous studies have highlighted important leadership traits such as self-confidence, communication skills, and the ability to influence others positively. However, there is limited research focusing on how these leadership qualities translate into effective teamwork specifically within the context of higher education faculties in technical fields. This study aims to explore the leadership styles and practices exhibited by faculty members in the Mechanical Engineering Department at NEUST-Sumacab Campus and to assess how these influence teamwork and collaboration. Understanding this relationship is vital because teamwork among faculty can enhance the overall quality of teaching and learning. The literature shows that leadership is more than just giving orders—it involves effective communication, self-confidence, and building strong relationships with followers. Kuepers highlights the give-and-take nature of leadership, while Anderson and Lu (2017) emphasize self-confidence as key to decision-making. Burns (2008) and Hoy & Miskel (2008) describe leadership as guiding people toward common goals and higher motivation. Ilac (2011) stresses that strong leader-follower bonds improve productivity, and Abrugar (2012) reminds us leadership starts with self-leadership, not just formal positions. Dulay (2010) points out communication is essential in leader-member interactions, and Bernardo (2010) links leadership and teamwork skills with better academic performance. Generally, this aims to study Effective Leadership Among Faculty in the Mechanical Engineering Department at NEUST-Sumacab Campus: Basis for Enhancing Teamwork. Specifically, it sought to answer the following questions:

How may the respondent's profile be described in terms of:
1.1 Age
1.2 Sex
1.3 Educational Attainment
1.4 Occupation
1.5 Length of Service in the Department

How may the faculty of Mechanical Engineering Department describe Leadership in terms of:
2.1 Influence 2.2 Power How may the Effective Leadership Among Faculty in the Mechanical Engineering Department be measured in terms of:
3.1 Decision-Making
3.2 Conflict Resolution
3.3 Motivation
3.4 Delegation

What challenges of faculty members in experiencing effective leadership within the department? What strategies can be proposed to enhance teamwork based on the findings of the study?

This study will benefit instructors, non-teaching personnel, support staff etc. by providing insights into effective leadership practices that can foster a more collaborative and cohesive working environment. By identifying leadership strategies that promote teamwork, the study aims to enhance the overall performance and morale within the department. Furthermore, in addition, the study will serve as a valuable reference for future researchers who wish to explore leadership and teamwork more deeply. It may inspire more comprehensive studies and frameworks that contribute to the continuous improvement of leadership practices in educational institutions. The study will be conducted at the Mechanical Engineering Department at NEUST-Sumacab Campus. This study limits among the faculty of Mechanical Engineering Department.

II. REVIEW OF RELATED LITERATURE

Kuepers stated that leaders were not always the one who questioned their members; it was the give-and-take process wherein the leaders led answers and gave their perspective in one specific topic in a kind way that their members easily understood [17].

Michael Anderson & Fangwen Lu (2017) studied that although adults who served as leaders were observably different from non-leaders — leaders tended to have higher cognitive ability, more self-confidence, and more motivation or drive — it was not clear whether these differences arose because leadership service changed individuals or because these individuals were selected for their pre-existing skills. This mentioned one specific variable in the researcher's study which was self-confidence. This said that self-confidence was one of the important leadership traits. It could also be connected with decision-making. If the leaders had self-confidence therefore, they had the trait to decide on their own and be responsible for all the decisions that they made [2].

According to Burns (2008), civilization depended on 'transforming leaders,' not only problem solvers but those who could help society to a higher level of morality and motivation. Some writers on leadership said that leaders were those who not only 'did things right' but were also seen to do the right thing. It showed that being leaders did not end in solving problems, but was about the person who was willing to help and guide his/her society to become better. A leader was not the one who always made right but always knew what was best and saw what was wrong [5].

Hoy & Miskel (2008) studied that leadership referred to the process of social influence in which one person enlisted the aid and support of others in the accomplishment of a common task. This statement said that leadership could start with social influences that supported one another and achieved common tasks [5].

According to Ilac (2011), in any organization, one of the most basic relationships was the connection between the leader and the follower. A healthy bond could produce efficiency and productivity, whereas a rocky connection could be detrimental to organizational success. The Implicit Leadership Theory suggested that expectations shaped follower perceptions and subsequently, their response to their leader. Ilac stated that the members were a direct reflection of a leader. They were watchers, followers, and listeners to their leader. If the leaders wanted them to be dedicated, they must be dedicated too. To be a great leader of people, inspire them to follow you, not your rules [4].

According to Abrugar (2012), leadership was not only for mayors, governors, congressmen, senators or for the president. It was not only for priests, famous artists or the business icons. Leadership was for all of us. You could be a leader of yourself. That was why if you wanted to lead the Filipinos, you should start by leading the nearest Filipino within your reach – you [3].

Prof. Toti Dulay (2010) studied that leadership was a complex phenomenon wherein a variety of forces interacted with each other. Four factors were identified in the literature to play interdependent roles in the leadership phenomenon. The first was the leader himself, especially his qualities or characteristics. The next was the follower and the qualities or characteristics he possessed. Then there was the factor of the situation or context or existing circumstances. The last factor was communication referring to the medium and style in which the communication was delivered by either the leader or the follower. It showed the relationship between a leader and his/her follower. It stated that communication was the medium of leaders and their members to understand each other's side [13].

Allan B.I. Bernardo (2010) studied that a critical variable in determining academic achievement in different cultures and educational systems was approaches to learning. Bernardo said that the different styles of learning were the key to academic achievement of the students. Almost similar results were also found by Jordan et al. (2010) that intrapersonal ability had little association with academic achievement, while adaptability had the strongest relationship with achievement in all subjects [18][20].

III.RESEARCH METHODOLOGIES

Research Design

This data-gathering instrument included both quantitative and qualitative tools. Quantitative data were gathered through structured surveys, while qualitative data were collected using in-depth interviews and focus group discussions. A survey-based research methodology was employed with a singular method design. Primary data were derived from respondents' answers to a tailored survey questionnaire.

Locale of the Study

The study was conducted in the Mechanical Engineering Department of NEUST Sumacab Campus, a higher education institution specializing in engineering.

Sample and Sampling Procedure

The total population consisted of 17 individuals. The researchers applied a purposive sampling method to ensure the inclusion of participants with relevant knowledge, experience, and insights related to effective leadership.

Respondents of the Study

The respondents were faculty members of the Mechanical Engineering Department, aged 20 to 49 years old and above, representing a diverse group in terms of age and experience.

Research Instrument

The researchers employed the descriptive-mixed method and formulated a survey instrument consisting of five components: Demographic Profile, Leadership in terms of Influence and Power, Effective Leadership measured in Decision-Making, Conflict Resolution, Motivation and Delegation, Challenges of Faculty, and Recommendations.

Data Gathering Procedure

After collecting the completed questionnaires, the researchers tallied and organized the data. A mixed-method design was employed, integrating quantitative data through a Likert scale survey and qualitative data through open-ended interviews. A total of 17 faculty members participated.

Data Analysis Technique

The Likert scale was employed as a methodology of statistical interpretation. Frequency percentage was used for the demographic profile. Thematic Analysis was applied to qualitative responses to identify patterns and insights.

Ethical Consideration

This Act was known as the "Data Privacy Act of 2012." It was the policy of the State to protect the fundamental human right of privacy and ensure that personal information in information and communications systems was secured and protected.

IV. RESULTS AND DISCUSSIONS

Profile of the Respondents

Age (in years)	f	%
20-29	10	58.82
30-39	2	11.77
40 and above	5	29.41
Total	**17**	**100.00**

Table 1. shows the profile of the respondents in terms of age, in majority are
belong to 20-29 years old with 58.82 percent followed by 5 or 29.41 percent belongs to

40 years old and above and 2 or 11.77 percent belongs to 30-39 years old.

Sex	f	%
Female	3	17.65
Male	14	82.35
Total	**17**	**100.00**

Table 2. shows the profile of respondents in terms of sex, in majority are belong to male with 14 or 82.35 percent and 3 or 17.65 percent belongs to female.

Educational Level	F	%
Bachelor's Degree	12	70.59
Master's Degree	4	23.53
Doctorate Degree	1	5.88
Total	**17**	**100.00**

Table 3. shows the profile of respondents in terms of educational attainment, in majority are belong to Bachelor's Degree with 12 or 70.59 percent followed by 4 or 23.53 percent belongs to Master's Degree and 1 or 5.88 percent belongs to Doctorate Degree.

Occupation	F	%
Teaching Staff	13	76.47
Administrative Staff	1	5.88
Support Staff	1	5.88
Job Order	2	11.76
Total	**17**	**100.00**

Table 4. shows the profile of respondents in terms of occupation, in majority are 100.00 belong to teaching staff with 13 or 76.47 percent followed by 2 or 11.76 percent belongs to Job Order and 1 or 5.88 percent belongs to Administrative Staff and Support Staff.

Years of Service	F	%
Less than 1 year	1	5.88
1-5 years	8	47.06
6-10 years	3	17.65
11-15 years	2	11.76
16-20 years and above	3	17.65
Total	**17**	**100.00**

Table 5. shows the profile of respondents in terms of Length of Service, in 100.00 majority are belong to 1- 5 years with 8 or 47.06 percent followed by 3 or 17.65 percent belongs to 6-10 years and 16 years and above followed by 2 or 11.76 percent belongs to 11-15 years and followed by 1 or 5.88 percent belongs to less than 1 year.

Leadership in Terms of Influence and Power

Influence	WM	VI
1. The leadership in our department effectively influences faculty decision making.	3.00	Agree
2. Mechanical Engineering Department leaders lead by example and set high standards of behavior.	3.06	Agree
3. Leadership in the Mechanical Engineering department positively influences faculty motivation and engagement.	2.94	Agree
4. I believe the leadership has a strong and positive influence on the Mechanical Engineering department's culture.	3.06	Agree
5. Leaders in the Mechanical Engineering Department are able to persuade and inspire faculty toward shared goals.	3.00	Agree
Overall weighted mean	**3.01**	**Agree**

Legend:1-Strongly Disagree[1.00-1.74];2- Disagree[1.75-2.49];3- Agree[2.50-3.24],4- Strongly Agree [3.25-4.00]

Table 6. Influence
Overall weighted mean = 3.01 (Agree).
Leaders led by example, set high standards, and had positive influence on the department's culture.

Power	WM	VI
1. Leaders in the Mechanical Engineering department use their authority to make fair and effective decisions.	2.94	Agree
2. Power in the department is used constructively to guide and improve performance.	3.00	Agree
3. Leadership power is respected because it is based on competence and integrity.	3.12	Agree
4. The influence of leadership power leads to positive changes in the department.	3.06	Agree
5. Leadership power is exercised to support the growth and development of faculty members.	2.94	Agree
Overall weighted mean	**3.01**	**Agree**

Legend:1-Strongly Disagree[1.00-1.74];2- Disagree[1.75-2.49];3- Agree[2.50-3.24],4- Strongly Agree [3.25-4.00]

Table 7. Power
Overall weighted mean = 3.01 (Agree).
Leadership was respected because it was based on competence and integrity.

Effective Leadership in Terms of:

Decision Making	WM	VI
1. Leadership considers input from faculty before making important decisions.	3.06	Agree
2. Faculty members feel confident in the decision-making abilities of department leadership	3.00	Agree
3. The decision-making process supports the overall goals of the department.	3.12	Agree
4. Department leaders make decisions based on clear and objective criteria.	3.12	Agree
5. Leadership demonstrates consistency and fairness in decision-making.	3.12	Agree
Overall weighted mean	**3.08**	**Agree**

Legend:1-Strongly Disagree[1.00-1.74];2- Disagree[1.75-2.49];3- Agree[2.50-3.24],4- Strongly Agree [3.25-4.00]

Table 8. Decision-Making
Overall weighted mean = 3.08 (Agree).
Leaders considered input, made fair decisions, and supported departmental goals.

Conflict Resolution	WM	VI
1. Conflicts are addressed without favoritism or bias.	3.06	Agree
2. The department leadership handles conflicts among faculty effectively	3.00	Agree
3. I trust the department leadership to handle faculty disagreements professionally	3.06	Agree
4. Conflict resolution contributes to a positive working environment in the department	3.18	Agree
5. Department leaders remain neutral when managing conflicts.	3.00	Agree
Overall weighted mean	**3.06**	**Agree**

Legend:1-Strongly Disagree[1.00-1.74];2- Disagree[1.75-2.49];3- Agree[2.50-3.24],4- Strongly Agree [3.25-4.00]

Table 9. Conflict Resolution
Overall weighted mean = 3.06 (Agree).
Conflicts were handled without favoritism, contributed to positive working environment.

Motivation	WM	VI
1. I feel motivated to perform well due to the support of departmental leaders.	3.18	Agree
2. The department head encourages innovation and professional growth	3.24	Agree
3. Leadership provides constructive feedback that boosts my motivation.	3.12	Agree
4. I feel valued as a faculty member by the department leadership.	3.65	Strongly Agree
5. Leadership helps remove obstacles that hinder faculty motivation and productivity.	3.06	Agree
Overall weighted mean	**3.25**	**Strongly Agree**

Legend:1-Strongly Disagree[1.00-1.74];2- Disagree[1.75-2.49];3- Agree[2.50-3.24],4- Strongly Agree [3.25-4.00]

Table 10. Motivation
Overall weighted mean = 3.25 (Strongly Agree).
Faculty felt valued, motivated, and encouraged toward innovation and growth.

Delegation	WM	VI
1. Delegated tasks help me grow professionally	3.12	Agree
2. I feel empowered by the responsibilities delegated to me.	3.24	Agree
3. The department head trusts faculty to complete delegated tasks.	3.29	Strongly Agree
4. Leadership assigns tasks based on faculty members' skills and strengths.	3.12	Agree
5. I am given appropriate responsibility and autonomy to carry out tasks.	3.24	Agree
Overall weighted mean	**3.20**	**Agree**

Legend:1-Strongly Disagree[1.00-1.74];2- Disagree[1.75-2.49];3- Agree[2.50-3.24],4- Strongly Agree [3.25-4.00]

Table 11. Delegation
Overall weighted mean = 3.20 (Agree).
Leaders trusted faculty, assigned tasks based on skills, and empowered them with responsibilities.

Challenges in Experiencing Effective Leadership
Faculty identified four challenges:

- Communication – lack of clarity, misunderstandings.
- Decision-making – inconsistency and shifting of decisions.
- Biases – personal influences affected interactions.
- Micromanagement – poor delegation led to uneven workloads.

Strategies to Enhance Teamwork
Faculty proposed two main strategies:

- Communication – active listening, clear channels, two-way feedback, concise language.
- Set Clear Goals and Decisions – timelines, milestones, and structured decision-making.

Output

Framework to Enhance Teamwork		
Key Element	**Purpose**	**Actions/Practices**
Active Listening	Build mutual understanding and respect	Encourage full attention during discussions; validate others' inputs
Establish Clear Communication Channels	Ensure smooth, transparent information flow	Use reliable platforms (meetings, emails, chat apps) and clarify communication protocols
Encourage Two-way Feedback	Promote open dialogue and continuous improvement	Create safe spaces for giving/receiving feedback; implement regular feedback sessions
Use Clear and Concise Language	Minimize confusion and misinterpretation	Train members to communicate simply and directly; avoid jargon
Timeline of Goals	Maintain focus and track progress	Set clear deadlines, milestones, and review checkpoints
Organized Decisions	Ensure consistency and alignment with objectives	Use structured decision-making methods; document and communicate decisions clearly

V.FINDINGS AND CONCLUSIONS

Findings and Conclusions
The findings of this study show that the demographic profile of respondents from the Mechanical Engineering Department shows that most are aged 20–29, male, hold a Bachelor's degree, work as teaching staff, and have 1-5 years of service. Leadership in the department is generally effective, with faculty agreeing that it sets high behavioral standards (influence) and is respected for competence and integrity (power), both with a weighted mean of 3.01. Decision-making (3.08) is seen as fair and aligned with departmental goals, while conflict resolution (3.06) promotes a positive work environment. Motivation received the highest rating (3.25), reflecting leadership's role in encouraging innovation and growth.

Delegation (3.20) shows that leaders trust faculty with responsibilities, contributing to effective teamwork. Whereas, Faculty members of the Mechanical Engineering Department identified four main challenges to effective teamwork: poor

communication, inconsistent decision-making, personal biases, and micromanagement. These issues lead to misunderstandings, reduced trust, and uneven workload distribution, ultimately lowering productivity and morale. To address these, faculty recommend two key strategies: enhancing communication through active listening and feedback, and setting clear, structured goals to guide consistent decision making. Implementing these approaches can foster a more collaborative, efficient, and goal-oriented departmental environment.

VI. RECOMMENDATIONS

To improve teamwork and departmental performance, it is recommended to strengthen communication through active listening and regular feedback, and to set clear, structured goals supported by consistent decision-making. These strategies will help create a more cohesive, efficient, and goal-driven work environment.

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