

# Competency Level of Technical Faculty in Aircraft Maintenance Technology Program in Selected University and Colleges

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**Abstract- Aircraft Maintenance Technology (AMT) is a highly specialized course that provides not only in theoretical aspects but also in practical side. Published studies have suggested that programs like AMT, which is anchored on the technical aspect of education, requires a great robust of the instructors by providing them an adequate, relevant and updated trainings to substantiate the theoretical knowledge with practical application of the students thus, making instructors competent. This study aimed to evaluate the level of competency of technical instructors in Aircraft Maintenance Technology in selected universities and colleges in terms of Classroom Management, Faculty Qualification and Experience, Mastery of the Subject Taught, Method and Strategy used in Teaching Instructional Methodologies, Research and Extension Projects. The investigation was basically a descriptive-normative survey method. Among the respondents were technical faculty members in selected colleges and universities. This includes 15 School Admin./ Program Coordinator and 120 Faculty. As a general result, it can be assessed that faculty members were competent across aforementioned variables thus, no significant difference exists. On the other hand, all the variables signify a significant relationship except to methods and strategy used in teaching instructional methodologies. With this, utilization of the proposed strategic model is highly recommended to be conducted by the Deans and Chairpersons of AMT Department geared toward upgrading them the knowledge of new contents in the curriculum and familiarizing them with the state of the art in Aircraft Maintenance Technology pedagogy as well in the area of research and extension as it is deemed suitable, acceptable and feasible.**

**Index Terms- Competency Level, Technical Faculty, Strategic Model, Theoretical, Practical**

## I. INTRODUCTION

In its basic form, technical education is the use of synchronous actual demonstration in order to instruct students, especially in the field of Aircraft Maintenance Technology (AMT), that is to say that the more competent the technical instructor the higher the education is centered on information and results to a process of building knowledge.

We cannot deny the reality that one of the most important human resources to develop in the field of Aircraft Maintenance Technology are the technical instructors which should be specialized in this line. While it is important to develop them with basic education of people, equally most important is the training in the higher training facility institutions.

If technical instructors are properly developed in an environment of freedom, excellence and relevance, we can assure their constructive and developing and catalyzing students full potentials and capabilities of becoming creative, decisive, competitive, critical thinkers and acting individuals who can contribute to the realization of the school mission and goals.

Technical education in the field of Aviation continues to flourish across the globe. As we pass from the early adopter phase to acceptance by the masses, the number of technical instructors in the field of Aircraft Maintenance Technology taking part in technical education grows. Although qualified in their field, based on evaluation some of these instructors lacked the number of units in master's degree and sufficient training necessary to enhance their method of instruction or facilitation.

Furthermore, criteria for teaching competencies has been developed and designed to assess technical

instructors. This study discusses the process of constructing a competency document for technical instructor in the field of Aircraft Maintenance Technology.

Some of instructors do not have enough training. The only training, they have been only during their on the job training (OJT). Though not the ideal situation, there are clearly many quality training courses being taught by quality instructors having only the traditional experiential knowledge. Effective use of Instructional material to extend the educational experience beyond the limitations of both time and space while maintaining interactivity and high-quality Instruction has begun to overcome many perceived limitations of the medium.

Just as a quality course is important, a quality instruction is also important, but this is based on the level of competency of instructor.

## II. PROCEDURE

- Research Design

This study aimed to evaluate the level of competency of technical instructors in Aircraft Maintenance Technology in selected universities and colleges.

The investigation was basically a descriptive-normative survey method that employed a questionnaire, and direct observations in gathering data.

- Population and Sampling

The study used purposive sampling technique, also known as judgmental, selective, or subjective sampling. It is a form of non-probability sampling in which researchers rely on their own judgment when choosing members of the population to participate in their surveys.

Among the respondents were technical faculty members in selected colleges and universities. This includes 15 School Admin./ Program Coordinator and 120 Faculty.

- Data Gathering Procedure

Due to pandemic situation the data gathering procedure of this study was through online platforms. The survey questionnaire was first validated by qualified and experts in the field of aviation and also in academe to gather a reliable and valid data. The questionnaire contains 4 set of close ended questions. Part 1 is the demographical profile of the respondents. Part 2 pertains the issues that concern the competency of instructors in the field of Aircraft Maintenance Technology. Part 3 is the level of adequateness and effectiveness of training development program given to technical instructors in AMT and lastly, Part 4 is about the most encountered problem by technical instructors teaching AMT.

The researcher sought the permission of Dean/School Heads of the selected universities and colleges via email to conduct the study. After securing permission, the researcher facilitated the questionnaires to the technical faculty via google forms. The gathered data were treated, analyzed and interpreted.

- Statistical Treatment of Data

The following statistical tools for the interpretation of results according to sub-problems were percentage, weighted mean, T-test of Significant Difference between two Means for independent variable to determine whether or not significant difference exist between the perceptions of the teacher and school heads respondents and Pearson r to determine whether or not significant relationship exist between the assessment of the two groups of respondents on the competency level of Faculty in Maintenance Technology.

III. RESULTS

Table 1  
Summary of the Competency Level of Faculty

Variables	School Admin./ Program Coordinator		Faculty		Composite Mean		Rank
	WM	VI	WM	VI	WM	VI	
1. Classroom Management	3.86	C	3.88	C	3.87	C	4
2. Faculty Qualification and Experience	3.96	C	4.00	C	3.98	C	3
3. Mastery of the Subject Taught	4.01	C	4.04	C	4.03	C	1
4. Method, Technique and Strategy used in Teaching Instructional Methodologies	3.98	C	4.00	C	3.99	C	2
5. Research	3.30	MC	3.31	MC	3.30	MC	5
6. Extension Projects	3.25	MC	3.28	MC	3.27	MC	6
<b>Overall Mean</b>	<b>3.73</b>	<b>C</b>	<b>3.75</b>	<b>C</b>	<b>3.74</b>	<b>C</b>	

The assessment of the respondents on the summary of the competency level of faculty in selected university and colleges is reflected in Table 1.

Mastery of the subject taught (WM=4.03) rank 1; method, technique and strategy used in teaching instructional methodologies (WM=3.99) rank 2; faculty qualification and experience (WM=3.98) rank 3; classroom management (WM=3.87) rank 4 rated by the respondents as competent; while, research (WM=3.30) rank 5; and extension projects (WM=3.27) rank 6 assessed as moderately competent. In general, the competency level of faculty in selected university and colleges assessed by the respondents as competent with an overall mean value of 3.74.

Table 2  
Significant Difference on the Competency Level of Faculty

Variables	School Admin./ Program Coordinator		Faculty		t-test		
	WM	SD	WM	SD	t-value	Int.	Decisions
1. Classroom Management	3.86	0.12	3.88	0.12	0.61	NS	Accept H <sub>0</sub>
2. Faculty Qualification and Experience	3.96	0.10	4.00	0.10	1.46	NS	Accept H <sub>0</sub>
3. Mastery of the Subject Taught	4.01	0.11	4.04	0.10	1.01	NS	Accept H <sub>0</sub>
4. Method, Technique and Strategy used in Teaching Instructional Methodologies	3.98	0.09	4.00	0.09	0.81	NS	Accept H <sub>0</sub>
5. Research	3.30	0.08	3.31	0.06	0.47	NS	Accept H <sub>0</sub>
6. Extension Projects	3.25	0.07	3.28	0.07	1.56	NS	Accept H <sub>0</sub>
	<b>3.73</b>	<b>0.35</b>	<b>3.75</b>	<b>0.36</b>	<b>0.21</b>	<b>NS</b>	<b>Accept H<sub>0</sub></b>

Table 2 describes the significant difference in the competency level of faculty in selected university and colleges.

As described in the data, classroom management (t-value=0.61); faculty qualification and experience (t-value=1.46); mastery of the subject taught (t-value=1.01); method, technique and strategy used in teaching instructional methodologies (t-value=0.81); research (t-value=0.47); and extension projects (t-value=1.56) assessed as not significant.

As a whole, the obtained overall t-value of 0.21 which is less than the critical value of 1.645 at five percent level of significance with 133 degrees of freedom, hence the null hypothesis is accepted.

Table 3  
Significant Relationship

Variables	Correlation Ratio	Critical Value at .05	Interpretation	Decision
1. Classroom Management	0.99	0.497	Significant	Reject H <sub>0</sub>
2. Faculty Qualification and Experience	0.59	0.497	Significant	Reject H <sub>0</sub>
3. Mastery of the Subject Taught	0.99	0.632	Significant	Reject H <sub>0</sub>
4. Method, Technique and Strategy used in Teaching Instructional Methodologies	0.31	0.423	Not Significant	Accept H <sub>0</sub>
5. Research	0.97	0.576	Significant	Reject H <sub>0</sub>
6. Extension Projects	0.99	0.532	Significant	Reject H <sub>0</sub>

Table 3 portrays the significant relationship between the assessment of the two groups of respondents on the competency level of Faculty in Maintenance Technology.

As to Classroom Management, the computed pearson r-value of 0.99 is greater than the critical value of .497 at five percent level of significance with 14 degrees of freedom, signifying the significant relationship, rejecting the hypothesis. Furthermore, there is negligible correlation.

As to Faculty Qualification and Experience, the computed pearson r-value of 0.59 is higher than the critical value of .497 at five percent level of significance with 14 degrees of freedom, signifying there is significant relationship, rejecting the hypothesis. Furthermore, there is moderate correlation.

As to Mastery of the Subject Taught, the computed pearson r-value of 0.99 is higher than the critical value of .632 at five percent level of significance with 8

degrees of freedom, signifying there is significant relationship, rejecting the hypothesis. Furthermore, there is very strong correlation.

As to Method, Technique and Strategy used in Teaching Instructional Methodologies, the computed pearson r-value of 0.31 is lesser than the critical value of .423 at five percent level of significance with 20 degrees of freedom, signifying there is no significant relationship, accepting the hypothesis. Furthermore, there is weak correlation.

As to research, the computed pearson r-value of 0.97 is higher than the critical value of .576 at five percent level of significance with 10 degrees of freedom, signifying there is significant relationship, rejecting the hypothesis. Furthermore, there is very strong correlation.

As to extension projects, the computed pearson r-value of 0.99 is greater than the critical value of .532 at five percent level of significance with 12 degrees of freedom, signifying there is significant relationship, rejecting the hypothesis. Furthermore, there is very strong correlation.

As described in the table, the respondents assessed lack of theoretical and hands on recurrence training given by the school administration to develop the Teaching competency of Technical faculty (WM=4.29) rank 1 and lack of necessary tools/equipment and miscellaneous materials use by the Technical faculty and students during the conduction of Hands-on Laboratory (WM=4.23) rank 2 as highly encountered.

Table 5  
Suitability of the Proposed Strategic Model

Indicators	School Heads		Teachers		Composite Mean		Rank
	WM	VI	WM	VI	WM	VI	
1. The proposed strategic model is suitable for considered policy guidance of implementation.	3.99	S	4.05	S	4.02	S	4
2. The proposed strategic model is suitable for operation / administrative practices, procedures and system of school.	4.08	S	4.11	S	4.10	S	2
3. The proposed strategic model is suitable and in accordance with CHED vision, mission, goals and objectives.	3.96	S	4.00	S	3.98	S	5
4. The proposed strategic model provides a reasonable preparatory time to enable program to make necessary adjustments for adaptation and implementation.	4.11	S	4.15	S	4.13	S	1
5. The objectives of proposed strategic model are suitable since they can be achieved in reasonable time frame.	4.02	S	4.06	S	4.04	S	3
<b>Overall Mean</b>	<b>4.03</b>	<b>S</b>	<b>4.07</b>	<b>S</b>	<b>4.05</b>	<b>S</b>	

Table 5 pertains the suitability of the proposed strategic model.

As pertained in the table, the proposed strategic model provides a reasonable preparatory time to enable program to make necessary adjustments for adaptation and implementation (WM=4.13) rank 1; the proposed strategic model is suitable for operation / administrative practices, procedures and system of school (WM=4.10) rank 2; the objectives of proposed strategic model are suitable since they can be achieved in reasonable time frame (WM=4.04) rank 3; the proposed strategic model is suitable for considered policy guidance of implementation (WM=4.02) rank 4; and the proposed strategic model is suitable and in accordance with CHED vision, mission, goals and objectives (WM=3.98) rank 5 assessed by the respondents as suitable.

Generally, the suitability of the proposed strategic model obtained an overall mean value of 4.05 interpreted as suitable.

Table 4

Problems Encountered by the Faculty in Teaching Maintenance Technology

Problems Encountered	WM	VI	Rank
1. Lack of opportunity and material time to enroll in graduate program.	3.86	E	15
2. Inefficient knowledge and skills in the formulation of strategic planning and implementation.	3.92	E	12
3. Lack of commitment to foster school culture and values such as learning, interest and relationship.	3.93	E	11
4. Lack of leadership commitment to proportionate risk management.	4.10	E	6
5. Academic Supervisor, Dean and Department Head are not a risk taker in undertaking school activities.	3.90	E	13
6. Model of effective leadership and organizational structure is not a common within the education sectors.	3.88	E	14
7. Lack of support of people involved in the ethical aspect of making the objective a reality.	4.15	E	4
8. Stakeholders are uncooperative in all areas of activities for a change.	4.08	E	7
9. Political, bureaucratic, and resources are hindrance for a change in instructional leadership.	4.18	E	3
10. Lack of team effort in problem solving approach to address weaknesses to remove barriers.	4.11	E	5
11. Lack of consultation to the stakeholder in relation to the school activities, considering the views, priorities, expectation and risks.	3.95	E	10
12. Lack of physical and financial resources required to carry out the planned activities of the school.	4.04	E	8
13. Lack of school personnel to maintain the physical facilities, equipment of the school.	3.98	E	9
14. Lack of Theoretical and Hands on recurrence training given by the school administration to develop the Teaching competency of Technical faculty.	4.29	HE	1
15. Lack of necessary tools/equipment and miscellaneous materials use by the Technical faculty and students during the conduction of Hands-on Laboratory.	4.23	HE	2
<b>Overall Mean</b>	<b>4.04</b>	<b>E</b>	

Table 4 describes the problems encountered met by the Faculty in teaching Maintenance Technology.

Table 6  
Acceptability of the Proposed Strategic Model

Indicators	School Heads		Teachers		Composite Mean		Rank
	WM	VI	WM	VI	WM	VI	
1. The proposed strategic model could be a program and adopted by the institution.	4.10	A	4.12	A	4.11	A	2
2. The over-all action of proposed strategic model can be made clear to all concerned.	4.12	A	4.15	A	4.14	A	1
3. The proposed strategic model will benefit the institution.	4.01	A	4.07	A	4.04	A	4
4. The proposed strategic model is workable and operative.	3.96	A	3.98	A	3.97	A	5
5. The proposed strategic model is flexible enough to adapt to different conditions for which it is intended.	4.07	A	4.08	A	4.08	A	3
<b>Overall Mean</b>	<b>4.05</b>	<b>A</b>	<b>4.08</b>	<b>A</b>	<b>4.07</b>	<b>A</b>	

Table 6 manifests the acceptability of the proposed strategic model.

As manifested in the table, all indicators assessed by the respondents as acceptable. These are the over-all action of proposed strategic model can be made clear to all concerned (WM=4.14) rank 1; the proposed strategic model could be a program and adopted by the institution (WM=4.11) rank 2; the proposed strategic model is flexible enough to adapt to different conditions for which it is intended (WM=4.08) rank 3; the proposed strategic model will benefit the institution (WM=4.04) rank 4; and the proposed strategic model is workable and operative (WM=3.97) rank 5.

In general, the acceptability of the proposed strategic model obtained an overall mean value of 4.07 interpreted as acceptable.

Table 7  
Feasibility of the Proposed Strategic Model

Indicators	School Heads		Teachers		Composite Mean		Rank
	WM	VI	WM	VI	WM	VI	
1. Requirement for operational procedure, specific policies and standards are specified in the proposed strategic model.	3.89	F	3.92	F	3.91	F	5
2. The proposed strategic model has featured of being able to be implemented amidst existing environment both internal and external to organization.	3.91	F	3.94	F	3.93	F	4
3. The proposed strategic model installs budgetary funding which institute appropriation can provide.	3.95	F	3.97	F	3.96	F	3
4. Manpower and other resources can be allotted effectively to fit the requirement of the proposed strategic model.	4.00	F	4.08	F	4.04	F	1
5. Facilities and other requirement are available for utilization to carry out the purpose of the proposed strategic model.	4.00	F	4.04	F	4.02	F	2
<b>Overall Mean</b>	<b>3.95</b>	<b>F</b>	<b>3.99</b>	<b>F</b>	<b>3.97</b>	<b>F</b>	

Table 7 renders the feasibility of the proposed strategic model.

As rendered in the table, manpower and other resources can be allotted effectively to fit the requirement of the proposed strategic model (WM=4.04) rank 1; facilities and other requirement are available for utilization to carry out the purpose of the proposed strategic model (WM=4.02) rank 2; the proposed strategic model installs budgetary funding which institute appropriation can provide (WM=3.96) rank 3; the proposed strategic model has featured of being able to be implemented amidst existing environment both internal and external to organization (WM=3.93) rank 4; and requirement for operational procedure, specific policies and standards are specified in the proposed strategic model (WM=3.91) rank 5 rated as feasible.

This was supported with an overall mean value of 3.97 interpreted as feasible.

CONCLUSION

1. It can be concluded that technical instructors in selected colleges/universities were competent but still needs further improvement in the areas pertaining to Classroom Management; Faculty Qualification and Experience; Mastery of Subject Taught; Method and Strategy used in Teaching Instructional Methodologies; Research; and Extension Projects.
2. It is concluded that majority of the respondents have similar views, outlook and perception when it comes to the assessment in their competency level.
3. There is a significant relationship between variables 1, 2, 3, 5 and 6. However, there is negligible, moderate and very strong correlation between the variables. Where as in variable 4 there is no significant relationship, Furthermore, there is a weak correlation.
4. The problems had been pinpointed and identified for the implementation of the improvement of faculty development in teaching AMT.
5. The proposed strategic plan as assessed by the respondents are suitable, acceptable and feasible.

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