

The Academic Performance in Technology Subject of Selected College of Engineering Technology Students in Batangas State University

Dr. Jordan R. Taeza

Batangas State University

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ABSTRACT

Technical education is one of the major highlights in the educational reform brought about by the K-12 program. Many students now take technical-vocational streams, as these are the most in-demand programs not only in the country but internationally. The study aimed to describe the performance of selected CET students in the technology subject at Batangas State University. More specifically, the study determined the level of academic performance of selected male and female students during the midterm and final grading period, the problems encountered by the students in the technology subject, and the strategies and activities that were implemented to address the problems and improve the performance of students during the final grading period. The study made use of the survey method in data gathering. The researcher concluded that the problems encountered by CIT students in technology subjects are serious. In this study, it can be said that mechanisms for the implementation of buddy systems and experiential techniques should be carefully planned in order for them to serve their purpose and to benefit students maximally. Teachers should improvise ways to help, particularly those students who are having a difficult time in technology subjects.

Keywords: academic performance, engineering technology, technology subjects

INTRODUCTION

Change is sweeping across the nation. Different industries, moreover, the education sector, are embracing changes in the system. Such reform in education is to keep up with the call of time. As Bro. Armin Luistro mentioned, the Philippines is now embarking on what is arguably the most comprehensive basic education reform initiative ever done in the country since the establishment of the public education system more than a century ago. (Barret, 2010)

Technical education is one of the major highlights in the educational reform brought about by the K-12 program. Many students now take technical-vocational streams, as these are the most in-demand programs not only in the country but internationally. Thus, developing students' competency regarding the technology and vocational education program is necessary to ensure that students have the skills in line with the demand of industrialized service areas.

The researcher strongly agrees that technology educational programs play a significant role in raising the quality of college graduates in the country toward employment here and abroad or toward entrepreneurship. Along this line, different technical-vocational schools are being established in different parts of the country. The ultimate goal of technical vocational education is to strengthen the skills and knowledge of students and develop a good attitude or work ethic. In so doing, this would prepare them for a real work environment and become globally competitive, skilled workers.

The study aimed to describe the performance in Technology subject of College of Engineering Technology students in Batangas State University.

In more specific terms, this study sought answers to the following questions:

1. What is the level of academic performance of selected male and female CET students in the technology subject during the midterm grading period?
2. How serious are the problems encountered by the students in the technology subject?
3. What strategies and activities are implemented to address the problems in technology subjects and improve the performance of students in technology subjects?
4. How may the level of academic performance of students during the final grading period be described?
5. Is there a significant difference between the academic performance of the CET students in the midterm and final grading periods?

METHOD

In order to accomplish the objectives of the study, the survey method was employed in the data gathering.

RESULTS AND DISCUSSION

1. Academic Performance of CIT Students in the Technology Subject in the Midterm Grading Period

Table 1 shows the academic performance (level of proficiency) of male students during the midterm grading period.

Table 1 Academic Performance of CET Male Students during the Midterm Grading Period

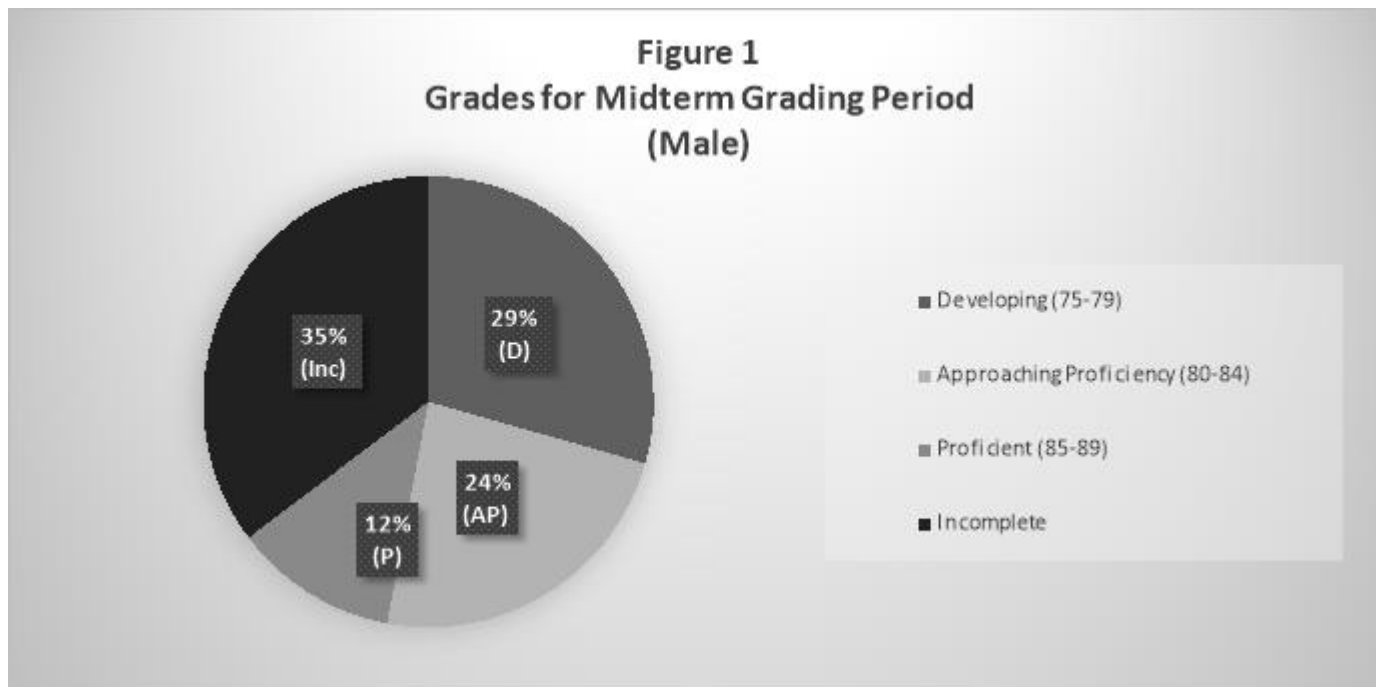
Student	Midterm Grading Period	
	NG	VI (Performance Level)
Male A	81	AP
Male B	78	D
Male C	85	P
Male D	-	*Inc
Male E	82	AP
Male F	-	*Inc
Male G	-	*Inc
Male H	77	D
Male I	78	D
Male J	83	AP
Male K	80	AP
Male L	76	D
Male M	-	*Inc
Male N	77	D
Male O	-	*Inc
Male P	-	*Inc
Male Q	85	P
Average	80.18	AP

Legend:

NG – Numerical Grade

VI – Verbal Interpretation

It can be noted from the table and supported by data in Figure 1 that the male students did not perform well during the midterm grading period. Six or 35 percent of the male students had “Incomplete” marks as they did not submit their project and did not participate much in the group work/activity.



It is also shown that five or 29.00 percent had a “developing” level of proficiency with grades ranging from 75 to 79, four or 24.00 percent were approaching proficiency with grades ranging from 80 to 84, while only two or 12.00 percent were proficient in the technology subject as they received grades ranging from 85 to 89. The figure is alarming, considering that the students are showing below-par performance in the subject. This really implies that the teacher should look at the factors that may have contributed to their lackluster performance. The average grade of the male students during the midterm grading period is 80.18, interpreted to be in the approaching proficiency level.

On the other hand, Table 2 shows the academic performance of female students.

Table 2 Academic Performance of CET Female Students in Technology Subject during the Midterm Grading Period

Student	Second Grading	
	NG	VI (Performance Level)
Female A	83	AP
Female B	86	P
Female C	84	AP
Female D	90	A
Female E	79	D
Female F	90	A

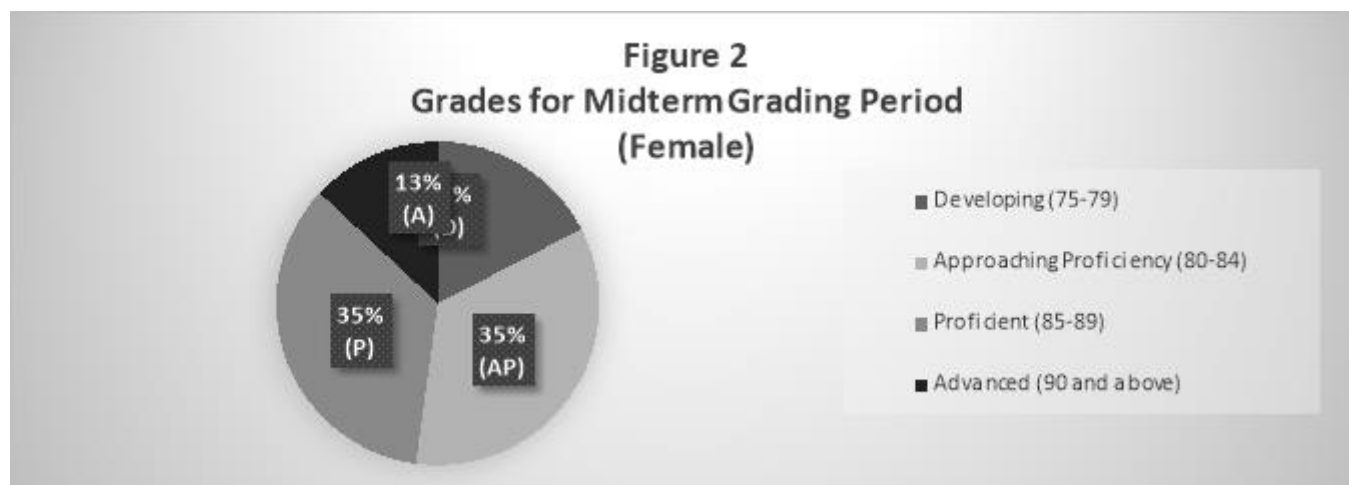
Female G	87	P
Female H	87	P
Female I	89	P
Female J	88	P
Female K	87	P
Female L	84	AP
Female M	83	AP
Female N	79	D
Female O	82	AP
Female P	79	D
Female Q	79	D
Female R	84	AP
Female S	82	AP
Female T	88	P
Female U	88	P
Female V	90	A
Female W	84	AP
Average	84.87	AP

Legend:

NG – Numerical Grade

VI – Verbal Interpretation

For some reason, the female counterpart performed better than their male counterpart in the technology subject. For instance, none of the female students had an incomplete grade for the midterm grading period, which suggests that they are more focused on the subject. Their average grade of 84.87 is better compared to male students.



In more specific terms, Figure 3 shows the grades of the female students for the midterm grading period. Among them, four or 17 percent had a “developing” proficiency level with grades ranging from 75 to 79. Eight or 35 percent were at the “approaching proficiency” level with grades ranging from 80-84, while another eight

or 35 percent were proficient with grades of 85-89. There are three or 13 percent who had an advanced level of proficiency, where their grades were 90 and above. The female students during the midterm period had an approaching proficiency level in the Tech-Voc subject based on their average grade of 84.87.

2. Seriousness of the Problems Encountered by CET Students in the Technology Subject

Table 3 presents the seriousness of the problems encountered by the students in the technology subject.

Table 3 Seriousness of Problems Encountered

Problems	Mean	Verbal Interpretation	Rank
1. Teaching strategy used in class	1.47	NS	7
2. Teacher's personality/characteristics	1.12	NS	6
3. Limited time to study at home	3.00	S	4.5
4. Physical characteristics of the room	3.00	S	4.5
5. Availability of learning materials for the subject	3.04	S	3
6. Attitude of the student towards the subject	3.51	VS	2
7. Financial constraints to make projects	3.57	VS	1
Composite Mean	2.67	S	

Legend:

3.51-4.00 Very Serious (VS)

2.51-3.50 Serious (S)

1.51-2.50 Less Serious (LS)

1.00-1.50 Not Serious (NS)

The composite mean of 2.67 suggests that the students encounter serious problems that hinder them from performing well in the subject. This tends to imply that the students could perform better if such problems are given focused attention. Moreover, in order to remediate such problems, necessary steps should be taken into account so as to make sure that the students perform well in the subject.

As shown in the table, financial constraint is a very serious problem that hinders students from completing their projects. This topped the list of problems in the subject. This obtained a mean of 3.57. This could be the main reason why some of the male students fail to submit the requirements/projects for the subject on time, thus, an incomplete mark in the subject. Many of the students come from low-income families that are working on a limited budget and/or are more concerned with providing the basic needs for the family.

It is a bit surprising that they admitted that their attitude towards the subject also poses a very serious problem that affects their academic performance. This obtained a mean of 3.51, which ranked second in the distribution of mean scores. As the researcher noticed, some of the students take the subject for granted and think that they should only focus on the core subjects such as English, Science, Mathematics, and Filipino.

Availability of learning materials for the subject obtained the third-highest mean of 3.04. This means that the respondents considered this a serious problem that needed attention. Such learning materials, if used properly, may serve as aids that help students learn the subject. The fact of the matter is that it is the obligation of the subject teacher to be resourceful in seeking supplementary materials that will assist student learning.

Limited time to study at home and physical characteristics of the room both obtained a mean of 3.00. The students consider this a serious problem that affects their learning. The students claimed that there should be a separate technology room rather than using the ordinary classroom to do their projects for the subject. Meanwhile, based on the interview conducted by the teacher with some students who are not performing well, they claim that they have a very limited time to study at home, since at times, they are asked by their parents to help them earn a living. Others are asked to take care of their young siblings while their parents are away.

On the other hand, the students noted that the teaching strategy used in class, with a mean of 1.47, and teachers' personality/characteristics, with a mean of 1.12, are less serious problems in learning the subject. This tends to imply that the teachers use appropriate strategies to maximize learning. Furthermore, some of the students claim that they like the teacher as they are approachable and very motherly, which helps in establishing a healthy and nurturing learning atmosphere.

3. Strategies/Activities Implemented to Address the Problems and Improve the Students' Academic Performance

The results strongly suggest that the students, particularly the males, do not perform well in the technology subject. Thus, the teacher implemented the following activities to help improve their performance and address the problems students encounter regarding the subject:

The buddy system, to a certain degree, aided in helping the slow learners in their studies; the researcher finds it fitting to continue the strategy. The researcher knew that it would be best if the buddy were given coaching to better assist their partner. Thus, the researcher conducted coaching for the "big buddy," which focused on topics regarding peer counseling, monitoring, and developing good study habits to share with their peer.

For students who have financial difficulties, the researcher allowed them to use materials from previously submitted projects from the past few years. The teacher had them recycle the old projects in order for them to develop a new one. Based on the reactions of some of the students, they were very thankful for the effort their teacher put up to assist their needs.

Moreover, the researcher also allotted around 10 minutes before class for reporting, where students were asked to report on livelihood innovations, and they were able to research through the internet or those that they were able to watch on television. The researcher was able to discover some useful activities from the reports conducted by the students.

A mini-exhibit was also conducted, showcasing the best projects submitted by the students. At the end of the exhibit, the teacher awarded the "best project" to selected students. Also held simultaneously during the event was the mini-tiangge and mini-baratillo, intended to generate funds to assist financially inept students.

To improve the layout of the technology subject room, the teacher weeded out old projects that could no longer be recycled/reused. Before the Christmas break, the students were also asked to assist the teacher in cleaning and decorating the technology room to make it more spacious and conducive.

4. Students' Academic Performance during the Final Grading Period

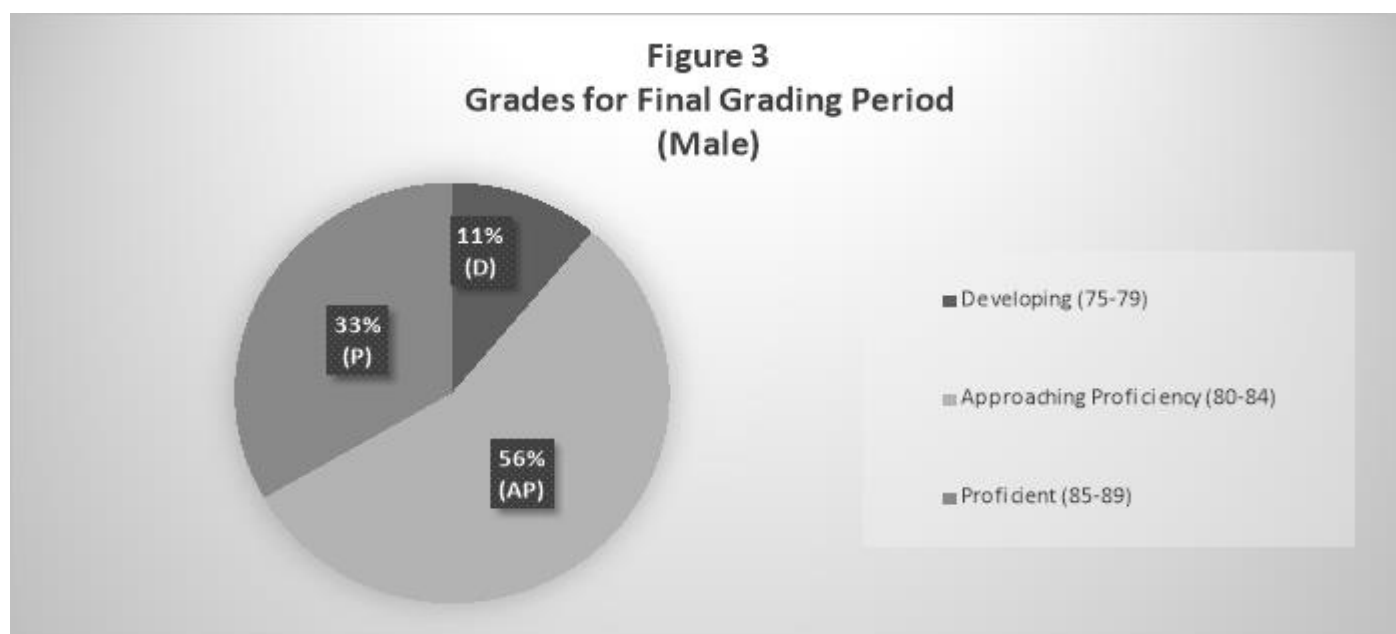
The succeeding tables present the academic performance of students in the technology subject during the final grading period.

Table 4 Performance of CET Male Students during the Final Grading Period

Student	Final Grading	
	NG	VI
Male A	85	P
Male B	83	AP

Male C	87	P
Male D	83	AP
Male E	85	P
Male F	81	AP
Male G	80	AP
Male H	80	AP
Male I	85	P
Male J	86	P
Male K	82	AP
Male L	80	AP
Male M	79	D
Male N	82	AP
Male O	78	D
Male P	84	AP
Male Q	89	P
Average	82.88	AP

After conducting the intervention, none of the students got an incomplete mark. Moreover, the overall average grade of the male students of 82.88 was higher than their average grade during the midterm grading period.



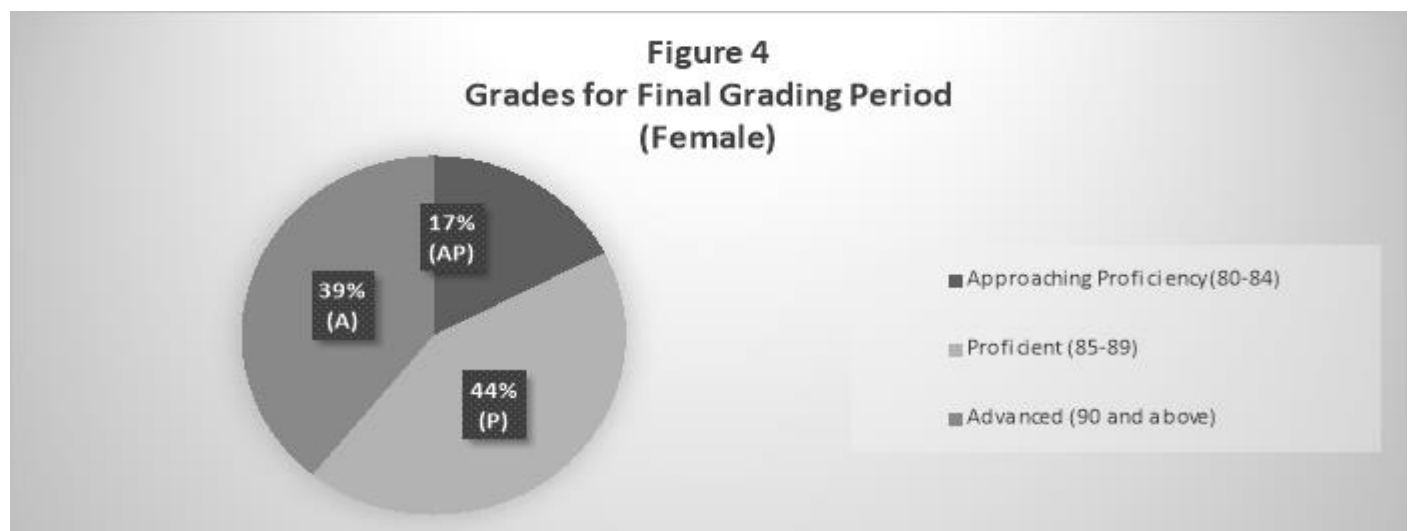
As supported by Figure 4, two or 11.00 percent had a “developing” level of proficiency, where their grades range from 75-79. Nine or 56.00 percent had approaching proficiency level with grades ranging from 80-84, while it is worth noting that six or 33 percent were proficient with grades ranging from 85-89. Their performance in the final grading period was far better than their performance during the midterm grading period.

The academic performance of female students in the technology subject during the final grading period is shown in Table 5. The table shows that the female students had an average grade of 88.30. This result reveals that the students are proficient in the subject.

Table 5 Performance of CET Female Students during the Final Grading Period

Student	Final Grading	
	NG	VM
Female A	90	A
Female B	91	A
Female C	87	P
Female D	96	A
Female E	83	AP
Female F	87	P
Female G	90	A
Female H	92	A
Female I	93	A
Female J	92	A
Female K	89	P
Female L	88	P
Female M	88	P
Female N	86	P
Female O	87	P
Female P	81	AP
Female Q	81	AP
Female R	88	P
Female S	84	AP
Female T	88	P
Female U	86	P
Female V	94	A
Female W	90	A
Average	88.30	P

Figure 4 represents the performance of the female students during the final grading period. As clearly seen, four or 17.00 percent were approaching proficiency, 10 or 44.00 percent of the female students were already proficient, while 9 or 39.00 percent were advanced in the technology subject.



5. Significant Difference in the Academic Performance of CET Students in the Midterm and Final Grading Periods

Table 6 presents the results of the test for the significant difference in the academic performance of CET students in Batangas State University.

Table 6 Significant Difference between the Grades of Male Students

Source of Variation	SS	df	MS	F	P-value	F crit	Decision Ho
Between Groups	7.545455	1	2.227273	0.696464	0.00951	0. 344521	Reject
Within Groups	208.3333	20	10.46364				
Total	215.87	21					

As shown in Table 3, the performance of the students in the technology subject during the midterm and final grading periods shows a significant difference, which resulted in the rejection of the null hypothesis. This is shown by the critical F value of 0.344521, which was lower than the F score of 0.696464 at the 0.05 level of significance. The computed P-value of 0.00951 was also lower than the 0.05 level of significance, which suggests that the grades showed a significant difference. This points out that the intervention conducted by the researcher resulted in the improvement of the grades of the students.

The test for significant difference among the grades in the technology subject during the midterm and final grading periods of the female students is shown in Table 7.

Table 7 Significant Difference between the Grades of Female Students

Source of Variation	SS	Df	MS	F	P-value	F crit	Decision Ho
Between Groups	20.4469	1	28.3193	3.37774	0.00529	1.70606	Reject
Within Groups	705.8398	44	10.66844				
Total	726.2867	45					

As shown in the table, the grades of the female students likewise showed a significant difference based on the critical F value of 1.70606, which was lower than the F score of 3.37774 at a 0.05 significance level. The computed p-value of 000529, which was lower than the 0.05 significance level, implies that the null hypothesis should be rejected.

The statistical result implies that the grades of the students significantly improved since it showed significant differences. Thus, it is safe to say that the intervention activities implemented by the researcher improved the performance of the students.

CONCLUSIONS

Based on the findings of this study, the following conclusions are drawn:

1. In the midterm grading period, both the male and female students are approaching the proficiency level of academic performance in the technology subject, with a grade average of 80.18 for males and 84.87 for females.
2. The problems encountered by students in a technology subject are found to be serious.
3. The strategies/activities utilized by the researcher to address the problems encountered and improve the academic performance of students in the technology subject are the buddy system, utilizing recycled materials in project making, reporting, and conducting a Mini-Exhibit.

4. During the final grading period, the males' academic performance in the technology subject is at the approaching proficiency level with a grade average of 82.88, while the females obtained 88.30 average grade described as being in the proficiency level.
5. The students' academic performance in the midterm and final grading periods shows a significant difference.

RECOMMENDATIONS

In light of the findings of the study, the following recommendations are offered:

1. Projects and activities for the technology subject need not be expensive, and teachers should explore the possibility of using recycled materials for such.
2. Mechanisms for the implementation of the buddy system and experiential technique should be carefully planned for them to serve their purpose and to benefit students maximally.
3. Teachers should improvise ways and strategies to help, particularly those students who are having a difficult time in the subject.
4. Other researchers should explore and conduct studies to enhance students' performance in technology education.

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