# Perceptions of the SHS Community of De La Salle Lipa on the Level of Influence of CAPSTONE project, "Layered Decomposer", to the Waste Management Attitudes of Brgy. Mojon-Tampoy Residents

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**ABSTRACT**

This study assessed the possible influences of the CAPSTONE project of S12-18, namely "CO2-N: Compost to Optimize through the Nexus Way", and its innovation, the Layered Decomposer, towards the Waste Management Attitudes of Brgy. Mojon-Tampoy Residents. The data regarding the influences comes from the perceptions of teachers and students in the Senior High School Community of De La Salle Lipa who are deeply and directly related to the CAPSTONE Initiatives in the Senior High School Curriculum. The aspects of knowledge, satisfaction, and socioeconomic factors in relation to the product are assessed to find its relationship towards the residents' attitudes. Demographic profiles of gender and the subjects taught and preferred are included for assessment. It employed a descriptive survey research using questionnaire-checklists as data gathering instruments. Respondents are 30 selected SHS community members, a mix of teachers and students, from the STEM, ABM, and HUMMS strands, comprising the population of the study. The researchers were the key informants in orienting the selected respondents regarding the background of the project, its purpose, use, and advantages for its utility. The study revealed correlation stats between the demographics of gender and subjects, the knowledge, satisfaction, and socioeconomical aspects of influence, and the attitudes of residents towards waste management. The study also revealed any significance among the variables presented. Finally, the conclusions presented has significant implications for the Layer Decomposer's development. Recommendations to improve the project's influence for increased positive community attitudes are suggested accordingly to the results.

**Keywords:** ***CAPSTONE Initiatives, CO2-N Layered Decomposer, Influence Levels, Perceptions, and Theory of Planned Behavior.***

## INTRODUCTION

In this modern age, many professionals are engaged in work with a constant climate of continual change and innovation. To be able to meet expectations on these challenges and be able to remain competitive in the workplace, professionals must be highly-skilled problem solvers, developed, knowledgeable content experts in their specific line of work, and progressive, lifelong learners *(Dunlap & Grabinger, 2003; Hmelo & Evensen, 2000)*

To further prepare people on attaining professionalism in their respective fields, the CAPSTONE course is introduced. The CAPSTONE experience, a school course for students, involves the identification of a certain problem or issue in a real-world setting and developing the means to address it. Solutions are typically interactive, meaning the end product is something that can be implemented and used *(University of Washington iSchool, 2018)*.

De La Salle Lipa conducted the similar project, serving as part of the Senior High School courses brought to students. In this endeavor, the class of S12-18 has formulated and conducted its own project output, "CO2-N: Optimize to Compost through the Nexus Way", featuring a product built for environmental purposes, entitled as the "Layered Decomposer." The purpose of the product to provide additional waste management sustenance to Brgy. Mojon-Tampoy, which was the assigned area for the CAPSTONE initiative of class S12-18. Brgy. Mojon-Tampoy, the place of interest, is currently facing problems pertaining to their waste materials, mainly their solid wastes, and their way of management towards it *(Vergara, A. et al, 2018)*. Therefore, the "Layered Decomposer" was created, aimed to help solve and/or mitigate their waste problem.

One challenge that the CAPSTONE course brings is ensuring the sustainability and effectivity capabilities of the product during its functionality. Students may encounter certain problems that may decrease the overall quality and effectiveness of the product, making it less likely to be beneficial to the stakeholders involved. Such problem must be avoided in order to ensure that the product will be able to give the maximum output it is expected to provide for its benefactors. With this, a study is conducted to serve as a beneficial source of information for the product development of S12-18.

The gathered data will be used to identify possible needs and areas of improvement, as there is a need to deliver an improved, more efficient product

output to the community, as part of the CAPSTONE initiatives course. This research may also prove to be useful for future researches as it focuses on topics of influences towards attitudes and waste management, which are prevalent concepts in today's modern age. Utilizing a quantitative research structure, data will be identified, analyzed, and interpreted for the benefit of the CAPSTONE project.

This study then assessed three aspects of influence: knowledge, satisfaction, and socioeconomic factors. Anchoring from Ajzen's *Theory of Planned Behavior (1985)*, it indicates that an individual's intention to perform or not to perform a particular behavior is prerequisite to any action. Ajzen's theory is suitable in this study since it involves certain influences to affect one's attitude or intention to for a certain action. The study investigates into possible behaviors that the implementation of the Layered Decomposer will bring towards its benefactors, the residents of Brgy. Mojon-Tampoy, through the perceptions of the SHS community.

## METHODOLOGY

To carefully assess the topic in hand, this study used the descriptive method of quantitative research. The research study follows a basic design of survey, which involves a brief in depth analysis and discussion on a specific topic with an individual or a group of individuals. The research applied a non-probability. convenience sampling technique. Using this type of sampling technique, the samples are selected due to their availability, accessibility, and proximity to the researchers. Thirty (30) respondents among the SHS community is conveniently selected to participat, which are determined by their gender and subject taught or preferred demographics. The whole data gathering process was initiated and accomplished in the vicinity of the De La Salle Lipa campus grounds.

The research had participants answer questions administered through modified questionnaires, based from the Standards Assessment Inventory (SAI), a standardized questionnaire used for measuring impact and levels of influence. After participants answer the questions, researchers describe the responses given. Furthermore, this questionnaire will be subdivided into five (5) subsections. The first subsection will be reserved for the respondent's profile, where the personal information will be optional, except for the gender and subject taught or preferred descriptions, as those will have a bearing to the results of the research. The next four (4) subsections will be dedicated for data gathering itself, dedicating a total number of twenty-five (25) question items that will revolve around the aspects of influences and the possible effects towards the residents' attitudes, which would be assessed by the respondents.

The responses will be measured through the Likert Scale, a scale usually used by researchers due to it being easy to use and analyze statistically. *(Jackson, 2009)*. The scale will revolve between five (5) available choices to gauge their perceptions on influence: Extremely Influential – 5, Moderately Influential – 4, Somewhat Influential – 3, Slightly Influential – 2, and Not at all Influential – 1. The last subsection will be dedicated for open suggestions, in which the respondents may place additional information that they think will increase the influence of the project. This qualitative data will have no bearing on the data analysis.

Questionnaires for data gathering will include a description that will supplement the respondents of the needed information regarding the CAPSTONE project. This description will contain the background information about the project, serving as the researcher's orientation to the respondents. The results of the questionnaires are to be analyzed to determine any changes, if any, in the perceptions of the SHS community of De La Salle Lipa regarding the context of the possible levels of influence the CAPSTONE project, "Layered Decomposer" to the attitudes of Brgy. Mojon-Tampoy's residents towards waste management. Frequency Distribution Tables, Mean Statistics, Weighted Mean, and Pearson *r* Correlation Coefficient are used for data analysis and interpretation, with the use of *Microsoft Excel* and *IBM SPSS Statistics 25* software applications.

## RESULTS AND DISCUSSION

In order to simplify the discussions, tables are provided that summarizes the collective responses of the respondents. Pertinent data were presented and analyzed using frequency, mean, percentage and standard deviation. A total of sixteen questionnaires were retrieved from the total 16 respondents.

### Demographic Profile of The Respondents

Distribution of respondents in terms of gender

Table 1 presents the distribution of respondents in terms of gender. Data showed that most of the respondents, teachers and students alike, were female, accounting to 60% (18), followed by males which accounts to 40% (12).

**Gender**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Male | 12 | 40.0 | 40.0 | 40.0 |
| | Female | 18 | 60.0 | 60.0 | 100.0 |
| | Total | 30 | 100.0 | 100.0 | |

*Table 1. Distribution of Respondents in Terms of Gender*

Distribution of respondents in terms of subject taught / preferred

Table 2 presents the distribution of respondents in terms of the subject taught by teachers, or subjects preferred for students. Data showed that most of the respondents, teachers and students alike, were female, teaches or preafers languages, accounting to 30.0% (9) of the responses, followed by other subjects, which accounts to 26.7% (8). Next is Sciences, which accounts for 16.7% (5) of the respondents, and lastly, both Mathematics and Computer subjects, both accounting for 13.3% (4) of the respondents.

**Subject taught / preferred**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Science | 5 | 16.7 | 16.7 | 16.7 |
| | Languages | 9 | 30.0 | 30.0 | 46.7 |
| | Mathematics | 4 | 13.3 | 13.3 | 60.0 |
| | Computer | 4 | 13.3 | 13.3 | 73.3 |
| | Others | 8 | 26.7 | 26.7 | 100.0 |
| | Total | 30 | 100.0 | 100.0 | |

*Table 2. Distribution of Respondents in Terms of Subjects taught / preferred*

## Evaluation of the Activity

In evaluating the means of the variables, a specific verbal interpretation is used. Table 3 below shows the verbal interpretation for the variables with respect to its R-value, or the means. The composite mean is also calculated and given a verbal interpretation.

| R-value | Interpretation |
|---|---|
| 1.00 – 1.80 | Not at all Influential |
| 1.81 – 2.60 | Slightly Influential |
| 2.61 – 3.40 | Somewhat Influential |
| 3.41 – 4.20 | Moderately Influential |
| 4.21 – 5.00 | Extremely Influential |

*Table 3. Verbal Interpretation of means used*

Means and Verbal Interpretation

Table 4 below shows the means and verbal interpretations of all questions under the knowledge aspect variable. The results showed that the overall mean is 4.27, which interprets as "Extremely Influential." The highest mean in the table is 4.40 and 4.10 as the lowest one, resulting to two (2) moderately influential and three (3) extremely influential. The table shows that most of the respondents agree that the product will be greatly influential to the knowledge aspect of the residents.

| Knowledge Aspect | MEAN | VERBAL INTERPETATION |
|---|---|---|
| 1. The product will help inform the residents of the basic principles of waste management. | 4.37 | Extremely Influential |
| 2. The product supplements a substantial amount of composting knowledge to the residents | 4.13 | Moderately Influential |
| 3. The use of the layered decomposer develops one's composting skills. | 4.10 | Moderately Influential |
| 4. There would be an increased awareness on the importance of waste management and composting. | 4.33 | Extremely Influential |
| 5. The knowledge of the product can be used for the conception of better, improved ways of waste management. | 4.40 | Extremely Influential |
| COMPOSITE MEAN | 4.27 | Extremely Influential |

*Table 4. Verbal Interpretation of Knowledge Aspect*

Table 5 below shows the means and verbal interpretations of all questions under the satisfaction aspect. The results showed that the overall mean is 4.05, interpreted as "Moderately Influential." The highest mean in the table is 4.17 and 3.97 as the lowest one, resulting to five (5) moderately influential. The table shows that all respondents do agree that there would be moderate influences towards the satisfaction of the residents, but it wouldn't be in extreme effects.

| Satisfaction Aspect | MEAN | VERBAL INTERPETATION |
|---|---|---|
| 1. The product fulfills the needs of the community towards waste management. | 4.03 | Moderately Influential |
| 2. The product provides convenience to the lives of the residents. | 4.00 | Moderately Influential |
| 3. The product will be reliable enough in biodegradable waste composting activities. | 4.17 | Moderately Influential |
| 4. The use of the product will be preferred over other waste managing activities, such as landfilling and incineration. | 3.97 | Moderately Influential |
| 5. The usage frequency of the product for waste management and composting activities will be increased. | 4.10 | Moderately Influential |
| COMPOSITE MEAN | 4.05 | Moderately Influential |

*Table 5. Verbal Interpretation of Satisfaction Aspect*

Table 6 below shows the means and verbal interpretations of all questions under the socioeconomic aspect. The results showed that the overall mean is 4.17, which interprets as "Moderately Influential." The highest mean in the table is 4.30 and 4.07 as the lowest one, resulting to four (4) moderately influential and one (1) extremely influential. The table shows that most of the respondents agree that the product will have moderate, considerable amount of effect towards the social and economic events and occurrences of the residents, but it will not reach a level of extremity.

| Social / Economical Aspect | MEAN | VERBAL INTERPETATION |
|---|---|---|
| 1. The product benefits the agricultural and other environment-related livelihoods of the residents. | 4.17 | Moderately Influential |
| 2. The product has great value towards the economic growth of the barangay. | 4.10 | Moderately Influential |
| 3. The product will provide and strengthen collaboration among residents. | 4.07 | Moderately Influential |
| 4. The product will promote active participation on community waste management's actions. | 4.30 | Extremely Influential |
| 5. The product gives opportunities for new and improved internal and external community relationships. | 4.23 | Moderately Influential |
| COMPOSITE MEAN | 4.17 | Moderately Influential |

*Table 6. Verbal Interpretation of Socioeconomic Aspect*

Table 7 below shows the means and verbal interpretations of all questions under the Residents' Attitudes variable. The results showed that the overall mean is 4.07, which interprets as "Moderately Influential." The highest mean in the table is 4.30 and 3.90 as the lowest one, resulting to eight (8)

moderately influential and two (2) extremely influential. The table shows that most of the respondents have precepted that the product Layered Decomposer will be having moderate influences when implemented in the community.

| **Residents' Attitudes** | MEAN | VERBAL INTERPETATION |
|---|---|---|
| 1. The product, overall, gives a better sense of responsibility to the residents. | 4.30 | Extremely Influential |
| 2. The product, overall, lessens the social pressure or subjective norm to perform proper waste management | 4.07 | Moderately Influential |
| 3. The product, overall, will increase one's personal passions for waste management. | 4.10 | Moderately Influential |
| 4. The product, overall, affects the moral obligations of the residents. | 3.90 | Moderately Influential |
| 5. The knowledge the product provides makes the residents to be more rational thinkers. | 4.03 | Moderately Influential |
| 6. The product will change the residents' daily mannerisms and behavior. | 4.07 | Moderately Influential |
| 7. The residents will be dependent on the product for their daily lifestyle and livelihood. | 3.97 | Moderately Influential |
| 8. The product raises the willingness of the residents for cooperation and collaboration. | 4.07 | Moderately Influential |
| 9. The product will provide residents with a better, positive outlook in life. | 3.97 | Moderately Influential |
| 10. The product leaves the residents open for future projects, products, and/or information towards better waste management. | 4.23 | Extremely Influential |
| COMPOSITE MEAN | 4.07 | Moderately Influential |

*Table 7. Verbal Interpretation of the Residents' Attitudes*

Relationship of Variables

In evaluating the relationships between variables, a specific verbal interpretation is used. Table 8 below shows the verbal interpretation for the variables with respect to its R-value, which corresponds to the pearson *r* correlation coefficient. Positive or direct and negative or inverse correlations are indicated. Significance is also evaluated, with a p-value significant having a value less than 0.05 and not significant having a value greater than 0.05.

| **R-value** | **Interpretation** |
|---|---|
| 0.00 | Zero correlation |
| 0.01 to ±0.20 | Negligible correlation |
| 0.21 to ±0.40 | Low or slight correlation |
| 0.41±0.70 | Moderate relationship |
| 0.71±0.90 | High relationship |
| 0.91±0.99 | Very high relationship |
| ±1.0 | Perfect correlation |

*Table 8. Verbal interpretation of correlation value (Pearson r)*

Table 9 below shows the correlation between the demographic of gender and the aspects of influence, with its given verbal interpretations. In terms of the r-values, the aspects of satisfaction and socioeconomic are in a positive negligible rate of correlation, while knowledge is in a negative low rate of correlation. This shows that satisfaction and socioeconomic aspects have a direct relationship with gender, and knowledge having an inverse relationship with gender. All p-values are greater than 0.05, therefore the null hypothesis is accepted as there are no significant relationships between the variables.

| Level /Profile | Gender | | | |
|---|---|---|---|---|
| | r-value | Verbal interpretation | p-value | Verbal interpretation |
| Knowledge | -.325 | Negative Low Correlation | .593 | Not significant |
| Satisfaction | .137 | Positive Negligible Correlation | .826 | Not significant |
| Socioeconomic | .090 | Positive Negligible Correlation | .885 | Not significant |

*Table 9. Correlation of Gender and the Aspects of Influence*

Table 10 below shows the correlation between the demographic of subjects taught or preferred and the aspects of influence, with its given verbal interpretations. In terms of the r-values, all aspects of influence have a negative moderate rate of correlation. This shows that knowledge, satisfaction, and socioeconomic aspects have an inverse relationship with the subjects taught or preferred by the SHS community. All p-values are greater than 0.05, therefore the null hypothesis is accepted as there are no significant relationships between the variables.

| Level /Profile | Subject taught / preferred | | | |
|---|---|---|---|---|
| | r-value | Verbal interpretation | p-value | Verbal interpretation |
| Knowledge | -.674 | Negative Moderate Correlation | .212 | Not significant |
| Satisfaction | -.442 | Negative Moderate Correlation | .456 | Not significant |
| Socioeconomic | -.496 | Negative Moderate Correlation | .395 | Not significant |

*Table 10. Correlation of Subjects Taught / Preferred and the Aspects of Influence*

Table 11 below shows the correlation between the demographic profile and the residents' attitudes, with its given verbal interpretations. In terms of the r-values, gender is positively correlated in a negligible rate while the subjects taught or preferred is negatively correlated in a negligible rate.

This shows that gender has a direct relationship with the attitudes, and the subjects taught or preferred have an inverse relationship with the attitudes. All p-values are greater than 0.05, therefore the null hypothesis is accepted as there are no significant relationships between the variables.

| Profile | Attitudes of Residents | | | |
|---|---|---|---|---|
| | r-value | Verbal interpretation | p-value | Verbal interpretation |
| Gender | .030 | Positive Negligible Correlation | .934 | Not significant |
| Subject taught / preferred | -.027 | Negative Negligible Correlation | .940 | Not significant |

*Table 11. Correlation of the Demographic Profile to the Attitudes of Residents*

Table 12 below shows the correlation between the aspects of influence and the residents' attitudes, with its given verbal interpretations. In terms of the r-values, knowledge and satisfaction are postitively correlated to attitudes, having negligible and low rates respectively. Meanwhile, the aspect of socioeconomic has a negative correlation with attitudes in a moderate rate. This shows that knowledge and satisfaction have a direct relationship with the attitudes, and the socioeconomic aspect have an inverse relationship with the attitudes. All p-values are greater than 0.05, therefore the null hypothesis is accepted as there are no significant relationships between the variables.

The correlation of the aspects of influence as a whole and attitudes of residents are also evaluated, having a positive low correlation, which pertains a direct relationship between the two. The value of p is greater than 0.05, meaning that the null hypothesis is accepted.

| Level | Attitudes of Residents | | | |
|---|---|---|---|---|
| | r-value | Verbal interpretation | p-value | Verbal interpretation |
| Knowledge | .025 | Positive Negligible Correlation | .969 | Not significant |
| Satisfaction | .277 | Positive Low Correlation | .652 | Not significant |
| Socioeconomic | -.512 | Negative Moderate Correlation | .378 | Not significant |
| Influence level as whole | Attitudes of Residents | | | |
| | r-value | Verbal interpretation | p-value | Verbal interpretation |
| | .207 | Positive Low Correlation | .565 | Not significant |

*Table 12. Correlation of the Aspects of Influence and the Attitudes of Residents*

## CONCLUSIONS AND RECOMMENDATIONS

For the conclusion, the results of the study imply that there is no significance between the demographic profiles of gender and subject taught or preferred, perceived influences of the SHS community and the attitudes of the residents of Brgy. Mojon-Tampoy towards waste management. This pertains that the product, when implemented in the community, only have a low probability of getting a large, significant influence towards the community attitude. Ajzen's theory states that there is a prerequisite for a person's intention and behavior. No significance can be interpreted as the implementation of the product in the community can affect, but not in a significant degree that it will bring big changes to the community.

Therefore, in order to contribute in the betterment of the community residents' attitudes, there are improvements and recommendations that must be given to the project's implementors, to secure a better, and more successful CAPSTONE initiative project. One recommendation is pinpoint improvements and modifications of the product Layered Decomposer towards increasing its knowledge, satisfaction, and socioeconomic influence towards the residents, to be more appealing and more effective to its future users. With larger, effective impact towards the residents, there would be a higher probability that the residents will have a significant positive attitudinal change for waste management.

Also, the researchers recommend that the future researchers of this study who wishes to create a case study with the same topic shall be able to make sure that the participants needed for the gathering of data must be well informed of the full background and scope of the study, to ensure maximum accuracy of data.

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