

# STUDENTS' COMMUNICATION PREFERENCE IN THE IMPLEMENTATION OF SINGLE-USE PLASTICS BAN: A CONJOINT ANALYSIS

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## Abstract

This research explicates the students' communication preference in implementing the banning of single-use plastics at Davao del Sur State College (DSSC). The study uses conjoint analysis to investigate the factors influencing students' communication preferences in this context. Findings reveal that a majority of respondents are first-year students (45.3%) primarily located at the DSSC main campus (44.8%), particularly from the Institute of Business Education and Governance (29.8%), and are predominantly undergraduate students (91.4%). Analysis of communication preferences indicates that radio broadcasts (utility=1.010), jingles (utility=.356), and the use of local dialects (utility=.105) are the most preferred communication channels, strategies, and mediums of delivery, respectively. Furthermore, the study finds no significant difference in communication preferences based on socio-demographic profiles since its p-value is above 0.05. These findings highlight the importance of aligning communication strategies with student preferences, emphasizing the effectiveness of radio broadcasts, jingles, and local dialects in conveying policies such as banning single-use plastics. Future researchers may conduct longitudinal studies to track changes in the communication preferences of students over time.

**Keywords:** Communication Preference, Single-Use, Plastics Ban, Conjoint Analysis.

## INTRODUCTION

Communication is essential to human function in many facets of life (Medina et al., 2024). With the pressing environmental concerns associated with plastic pollution, enforcing bans on single-use plastics has become increasingly vital. Despite their long-standing role in consumer culture for convenience and affordability, the detrimental effects of single-use plastics on ecological health, wildlife, human well-being, and waste management systems have spurred action from government agencies, businesses, and civil society to curb their usage.

In recent years, there has been a significant global push to combat plastic pollution and reduce the consumption of disposable plastics, with many nations implementing prohibitions on single-use plastics. However, this effort comes amidst an increase in global plastic manufacturing over just two centuries, resulting in a corresponding surge in plastic waste (Zhao et al., 2021). Nearly 400 million tons of plastic garbage are produced annually globally, with 60% ending up in natural environments or landfills (Statista, 2023). Factors exacerbating this crisis include delayed implementation of recycling techniques, low recycling rates, and the proliferation of disposable plastic items (Gounmelon, 2015). Governments worldwide have responded with environmental policies to reduce human-generated plastic waste, including

prohibiting disposable plastic items, which account for over 50% of global plastic trash (Giacovelli, 2018).

Moreover, banning single-use plastics has gained traction in various countries, with African nations gradually adopting measures to decrease their usage (Adam et al., 2021). While acknowledging the convenience of single-use plastics, it is essential to recognize their adverse effects on the environment and human health. Furthermore, several studies highlight the implementation of single-use plastic bans in colleges and universities worldwide, indicating a growing commitment to supporting sustainable campus programs (Ningrum & Herdiansyah, 2018).

In the Philippines, Republic Act No. 9003, known as the "Ecological Solid Waste Management Act of 2000," imposes penalties, including fines, license revocation, and imprisonment, for non-compliance (Hogaza, 2014). Additionally, Schachter and Karasik (2022) stress the presence of well-documented plastic bag regulations in academic sectors, promoting the use of non-single-use plastic bags.

Further, numerous State Universities and Colleges (SUCs), such as Ateneo de Davao University (Addu), San Pedro College (SPC), Assumption College of Davao (ACD), University of Southeastern Philippines (USEP), and Silliman University (SU), endorse this advocacy (Sunnexdesk, 2019).

The Regional Center of Expertise (RCE) in the Davao Region intensified this campaign by implementing the college-wide "Banning of Single-Use Plastics." This is one of the initiatives of RCE to establish Educational on Sustainable Development (ESD), which will be instilled in the communities of practice towards attaining the Sustainable Development Goals (SDG). Moreover, despite the adoption of anti-plastic bag policies in the region, more investigation is needed regarding the effectiveness of its implementation (Nyathi & Togo, 2020). This initiative is crucial to address SDG 12: "Ensure sustainable consumption and production patterns" (Hughes, 2020; Vladimirovaa & Blanc, 2015).

In Davao del Sur State College (DSSC), the strategic mindset of the leaders and administrators towards the college-wide banning of single-use plastic has been realized under Memorandum Order No. 07-2022-07 with a subject on "Banning of Single-use Plastics inside DSSC Campus" which mandated all DSSC employees, students, and visitors to prohibit bring or utilize any single-use plastics inside the campus premises.

Given the collective response to this global problem, the researcher was prompted to investigate the effectiveness of the implementation of the banning of single-use plastics advocacy in DSSC.

This study aimed to determine the students' communication preference in implementing the banning of single-use plastics at Davao del Sur State College (DSSC). Determine the socio-demographic profile of the respondents; assess the total utility of communication preference in the implementation of the banning of single-use plastics; determine the significant difference in the communication preference when group according to socio-demographic profile.

## II. MATERIALS AND METHOD

This study used the non-experimental descriptive design of quantitative research, which described the characteristics of a population or phenomenon being studied. Descriptive research answers the question about how, when, and why the characteristics occurred. The characteristics of the situation or populations are usually some definite scheme, also known as descriptive categories.

In addition, this study used a stratified random sampling technique, randomly selecting samples from a population subset. Suprayitno et al. (2018) stated stratified random sampling as the selection of a subset from a population in a completely random manner, ensuring that each member of the population has an equal chance of being chosen.

Further, to determine the appropriate sample size of the study for the respondents to be equally represented, the researcher used Slovin's formula, considering the population size and setting a margin of error (confidence interval) of +/-5%.

This study used two parts to collect data. The first instrument contained the socio-demographic profile of the respondents to determine their year level, cluster of discipline, campus admission, and student type. The second part was designed to decide their preferred communication preference when banning single-use plastics. In this part, the attributes of this instrument were identified through focus group discussion. They combined these cards through the orthogonal design of conjoint analysis, wherein 16-item combinations of the three factors were considered in this study. These factors highlighted the types of communication channels composed of attributes such as college orientation, posters, radio broadcasts, and social media. This was followed by communication strategies composed of attributes such as Audiovisual Presentation (AVP), jingles, reward, and punishment, as well as visuals and infographics. The last factor was the delivery medium, which refers to English or local dialect. Experts validated these instruments. San Jose (2023, p. 606) pointed out that validation of research instruments is critical to information gathering to make the data reliable and credible.

Three hundred sixty-two students were randomly selected from all year levels of undergraduate and graduate school students for the Academic Year 2023-2024. This included students from college main and extension campuses, namely, DSSC Main Campus, DSSC Matanao Extension Campus, DSSC Sta. Cruz Extension Campus, and DSSC Sulop Extension Campus. However, due to the limited area coverage, the results of this study can only generalize some of the students. San Jose (2012) mentioned that the findings of this study may only apply to those students who participated in the study.

## III. RESULTS AND DISCUSSION

### 1. Socio-demographic Profile of the Students of Davao del Sur State College

The study's first objective was to determine the socio-demographic profile of the Davao del Sur State College students. It was determined through Frequency and relative Frequency. The socio-demographic profile of the respondents is presented in Table 1.

**Table 1: Socio-demographic Profile of the Students of Davao del Sur State College in terms of Year Level**

| Year Level   | Frequency  | Relative Frequency (%) |
|--------------|------------|------------------------|
| 1st Year     | 164        | 45.3                   |
| 2nd Year     | 79         | 21.8                   |
| 3rd Year     | 79         | 21.8                   |
| 4th Year     | 40         | 11.0                   |
| <b>Total</b> | <b>362</b> | <b>100</b>             |

The result revealed that the largest group is 1st-year students with a frequency of 164, comprising 45.3% of the total student population. The second and third largest groups are 2nd-year and 3rd-year students, each with a frequency of 79, accounting for 21.8% of the total each. The smallest group is 4th-year students with a frequency of 40, making up 11.0% of the total student population. This information provides an overview of the distribution of students by year level, which can help understand the student population composition at the college.

**Table 1.1: Socio-demographic Profile of the Students of Davao del Sur State College in terms of campus**

| Campus              | Frequency  | Relative Frequency (%) |
|---------------------|------------|------------------------|
| Main Campus         | 162        | 44.8                   |
| Matanao Extension   | 15         | 4.1                    |
| Sta. Cruz Extension | 85         | 23.5                   |
| Sulop Extension     | 100        | 27.6                   |
| <b>Total</b>        | <b>362</b> | <b>100</b>             |

Table 1.1 shows that the largest group of students is from Sulop Extension, with a frequency of 100, comprising 27.6% of the total student population. The second largest group is from Main Campus, which has a frequency of 162, accounting for 44.8% of the total. Sta. Cruz Extension has a frequency of 85, making up 23.5% of the total student population. Matanao Extension has the smallest group of students with a frequency of 15, making up 4.1% of the total. This information provides an overview of the distribution of students across different campuses, which can help understand the student population at each campus.

**Table 1.2: Socio-demographic Profile of the Students of Davao del Sur State College in terms of Cluster of Discipline**

| Cluster of Discipline | Frequency  | Relative Frequency (%) |
|-----------------------|------------|------------------------|
| IARS                  | 65         | 18.0                   |
| IBEG                  | 108        | 29.8                   |
| ICET                  | 79         | 21.8                   |
| IMAS                  | 6          | 1.7                    |
| ITED                  | 73         | 20.2                   |
| IGPE                  | 31         | 8.6                    |
| <b>Total</b>          | <b>362</b> | <b>100</b>             |

Table 1.2 shows that the largest group of students is from the Institute of Business Education and Governance (IBEG), with a frequency of 108, comprising 29.8% of the total student

population. The second largest group is from the Institute of Computing and Engineering Technology (ICET), with a frequency of 79, accounting for 21.8% of the total. Institute of Teacher Education (ITED) has a frequency of 73, making up 20.2% of the total student population. Institute of Agricultural and Related Sciences (IARS) has 65 students, comprising 18.0%. Institute of Graduate Professional Education (IGPE) has 31 students, 8.6% of the total. Institute of Mathematics Arts and Sciences (IMAS) has the smallest group of students, with 6, making up 1.7% of the total. This information provides an overview of the distribution of students across different discipline clusters, which can help understand the composition of students in various academic disciplines.

**Table 1.3: Socio-demographic Profile of the Students of Davao del Sur State College in terms of Type of Student**

| Type of Student       | Frequency  | Relative Frequency (%) |
|-----------------------|------------|------------------------|
| Graduate Student      | 31         | 8.6                    |
| Undergraduate Student | 331        | 91.4                   |
| <b>Total</b>          | <b>362</b> | <b>100</b>             |

Table 1.3 shows that the largest group of students is undergraduate students, with a frequency of 331, comprising 91.4% of the total student population. The second largest group is Graduate Students, with a frequency of 31, accounting for 8.6% of the total. This information provides an overview of the distribution of students based on their academic status (undergraduate or graduate).

## 2. Students' Communication Preference in the Implementation of the Banning of Single-use Plastics Policy

Table 2 shows the utility values for each level of the three attributes for the overall sample.

**Table 2: Overall Utilities**

| Attributes                     |                                 | Utility Estimate | Std. Error  |
|--------------------------------|---------------------------------|------------------|-------------|
| Type of Communication Channels | College orientation             | .017             | .470        |
|                                | Social Media                    | -.345            | .470        |
|                                | Posters                         | -.682            | .470        |
|                                | Radio Broadcast                 | 1.010            | .470        |
| Communication Strategies       | Audio Visual Presentation (AVP) | .064             | .470        |
|                                | Jingle                          | .356             | .470        |
|                                | Visuals and Infographics        | .099             | .470        |
|                                | Reward and Punishment           | -.519            | .470        |
| Medium of Delivery             | Local Dialect                   | .105             | .272        |
|                                | English                         | -.105            | .272        |
| <b>Constant</b>                |                                 | <b>8.500</b>     | <b>.272</b> |

## 3. Most Preferred Attributes of DSSC Students

The estimation of the overall attributes that were preferred the most by the respondents in DSSC was undertaken using the additive Predictive Model as shown below:

The additive predictive model for the overall sample is:

$$\text{Total Utility} = \text{TCC} + \text{CS} + \text{MD}$$

Where,

|          |                                   |
|----------|-----------------------------------|
| TCC      | = .017 (College Orientation)      |
|          | = -.345 (Social Media)            |
|          | = -.682 (Posters)                 |
|          | = 1.010 (Radio Broadcast)         |
| CS       | = .064 (Audiovisual presentation) |
|          | = .356 (Jingle)                   |
|          | = .099 (Visuals and Infographics) |
|          | = -.519 (Reward and Punishment)   |
| MD       | = .105 (Local English)            |
|          | = -.105 (Dialect)                 |
| Constant | = 8.50                            |

The most preferred attribute is *radio broadcast* (1.010) as a type of communication channel, *jingle* (.356) as communication strategies, and *local dialect* (.105) as a medium of delivery. This preferred attribute has a total utility of 9.971, computed as follows:

$$\begin{aligned} \text{Total Utility} &= 1.01^{\text{SM}} + .356^{\text{J}} + .105^{\text{E}} + 8.50^{\text{C}} \\ &= 9.971 \end{aligned}$$

The preference for radio broadcast as the most preferred attribute for communication channels, jingles as the preferred communication strategy, and local dialect as the medium of delivery aligns with previous research findings on effective environmental communication. According to Ostovar et al. (2021), radio remains a powerful medium for reaching diverse audiences, particularly in regions with limited access to the Internet or television.

This aligns with the findings of this study, suggesting that radio broadcasts are perceived as accessible and effective in disseminating information about environmental policies, such as banning single-use plastics. Furthermore, the emphasis on jingles as the preferred communication strategy resonates with the review of Ben-Enukora et al. (2020), who highlight the effectiveness of creative and engaging messaging in fostering public awareness and support for environmental initiatives. By incorporating jingles, stakeholders can effectively capture attention, evoke emotions, and inspire action among the target audience, as supported by the findings of our study.

Additionally, the preference for using local dialects in communication materials is consistent with the research of Parhankangas and Renko (2017), who emphasize the importance of

linguistic and cultural sensitivity in communication campaigns. Local dialects can enhance relatability and resonance with the target audience, fostering a deeper connection and understanding of the campaign message. Overall, the convergence of these findings underscores the importance of tailoring communication strategies to meet the preferences and cultural contexts of the target audience, thereby enhancing the effectiveness of environmental communication efforts.

#### 4. Least Preferred Attributes for DSSC Students

The least preferred attributes for the DSSC Students, on the other hand, are *posters* (-.682) as a type of communication channel, *reward and punishment* (-.519) as communication strategies, and *English* (-.105) as a medium of delivery. It generated a total utility of 7.194. The findings suggest posters as the minor preferred attribute for communication channels, alongside reward and punishment as communication strategies and English as the medium of delivery, which aligns with existing literature on effective environmental communication strategies. Research by Gamble (2016) emphasizes that while posters can be visually appealing, they often need more interactivity and engagement to convey complex messages, particularly among younger audiences effectively. This study's findings support the idea that posters are not favored by DSSC students, who may prefer more interactive and dynamic communication channels.

Moreover, the rejection of reward and punishment as communication strategies is supported by the study of Alarifi et al. (2015), who argue that such strategies may be perceived as coercive or ineffective in promoting long-term behavior change. This study suggests that DSSC students prefer communication strategies emphasizing intrinsic motivation and collective action over external rewards or penalties. In addition, the reluctance to use English as the medium of delivery is consistent with the findings of Parhankangas and Renko (2017), who highlight the importance of linguistic and cultural sensitivity in communication campaigns. Our study's preference for local dialects suggests that using English may not effectively resonate with the cultural context and linguistic preferences of DSSC students. These findings underscore the need for communication strategies that prioritize interactivity, intrinsic motivation, and cultural relevance to engage and mobilize DSSC students in environmental initiatives effectively.

#### 5. Test of Difference of Students' Communication Preference when Group to Socio-demographic Profile

As shown in Table 7, with a 5% significance level, there is no significant difference in communication preference when grouped according to socio-demographic profile since the socio-demographic profile yields above the 0.05 significance level.

**Table 7: Test of difference when grouped according to profile**

| Attributes                    | Profile     | Mean | Test Statistics | P Value |
|-------------------------------|-------------|------|-----------------|---------|
| Year Level                    |             |      |                 |         |
| Type of communication Channel | First year  |      | 0.63            | 0.596   |
|                               | Second Year |      |                 |         |
|                               | Third Year  |      |                 |         |
|                               | Fourth Year |      |                 |         |

|                               |              |       |       |       |
|-------------------------------|--------------|-------|-------|-------|
| Communication Strategy        | First year   |       | 1.915 | 0.127 |
|                               | Second Year  |       |       |       |
|                               | Third Year   |       |       |       |
|                               | Fourth Year  |       |       |       |
| Medium of Delivery            | First year   |       | 0.527 | 0.664 |
|                               | Second Year  |       |       |       |
|                               | Third Year   |       |       |       |
|                               | Fourth Year  |       |       |       |
| Campus                        |              |       |       |       |
| Type of communication Channel | Digos        | 41.02 | .303  | .824  |
|                               | Matanao      | 43.75 |       |       |
|                               | Sta Cruz     | 40.33 |       |       |
|                               | Sulop        | 41.58 |       |       |
| Communication Strategy        | Digos        | 44.84 | 1.022 | .383  |
|                               | Matanao      | 46.75 |       |       |
|                               | Sta Cruz     | 45.76 |       |       |
|                               | Sulop        | 42.51 |       |       |
| Medium of Delivery            | Digos        | 14.45 | 1.360 | .255  |
|                               | Matanao      | 9.76  |       |       |
|                               | Sta Cruz     | 14.39 |       |       |
|                               | Sulop        | 22.97 |       |       |
| Discipline                    |              |       |       |       |
| Type of Communication Channel | Agriculture  | 44.45 | 1.944 | .086  |
|                               | Business     | 38.38 |       |       |
|                               | Computing    | 41.16 |       |       |
|                               | Mathema-tics | 35.38 |       |       |
|                               | Teacher      | 42.55 |       |       |
| Communication Strategy        | Agriculture  | 41.08 | 1.911 | .092  |
|                               | Business     | 47.42 |       |       |
|                               | Computing    | 45.10 |       |       |
|                               | Mathema-tics | 41.43 |       |       |
|                               | Teacher      | 43.56 |       |       |
| Medium of Delivery            | Agriculture  | 25.44 | .921  | .467  |
|                               | Business     | 14.41 |       |       |
|                               | Computing    | 14.19 |       |       |
|                               | Mathema-tics | 23.41 |       |       |
|                               | Teacher      | 14.41 |       |       |
| Type of Students              |              |       |       |       |
| Type of Communication Channel | Undergrad    | 41.11 | .013  | .909  |
|                               | Graduate     | 41.41 |       |       |
| Communication Strategy        | Undergrad    | 44.66 | .537  | .464  |
|                               | Graduate     | 42.69 |       |       |
| Medium of Delivery            | Undergrad    | 16.69 | .023  | .880  |
|                               | Graduate     | 15.60 |       |       |

Previous studies such as Nölke et al. (2015) and Torelli et al. (2020) suggest that while socio-demographic Profiles such as year level, cluster of discipline, campus admitted, and type of student may influence communication preferences to some extent, these differences may not always be statistically significant. Similarly, research by Patel et al. (2017) highlights the



complex interplay of socio-demographic profiles in shaping communication behaviors, with individual preferences often varying widely within demographic groups. These findings support that socio-demographic profiles alone may not be sufficient predictors of communication preferences, as individuals' attitudes, values, and personal experiences also play crucial roles in shaping their communication choices. Therefore, our study's results, indicating a need for significant differences in communication preferences based on socio-demographic profiles, underscore the importance of considering individual-level factors and preferences when designing communication strategies for environmental initiatives such as banning single-use plastics.

#### **IV. CONCLUSION**

The researcher's assumption is that the effective implementation of banning single-use plastics is a function of excellent and efficient communication. Results revealed that utilizing radio broadcasts as a communication channel can enhance student awareness and support for such initiatives. The preference for a jingle may also reflect a desire to appeal to younger demographics and foster a sense of community involvement and ownership in the campaign. This highlighted the importance of creativity, engagement, and emotional connection in effectively conveying the message, particularly in the banning of single-use plastics and rallying public support for sustainable solutions. Further, based on the findings of this research, the preferred factor for the medium of delivery to be used in radio broadcast jingles in communicating the implementation of banning single-use plastics is the local dialect. Using the local dialect in radio broadcast jingles, the college administration can establish a more personal and relatable connection with the students. This strategy not only makes the campaign message more understandable and accessible but also gives listeners a sense of inclusivity and ownership. Nonetheless, the study also resulted in no significant difference in communication preference when grouped according to socio-demographic profile. It suggests that variations in communication preferences among different socio-demographic profiles could have been more substantial.

#### **V. RECOMMENDATION**

Based on the results of the study, the researcher recommends the following:

The college administration may utilize its campus community radio station as a primary communication channel to strengthen the banning of single-use plastics. Given the preference for radio broadcasts, using jingles is a practical communication strategy for disseminating information and engaging students about the implemented policy. Likewise, incorporating local dialects in communication materials may be helpful, particularly in radio broadcast jingles. It can enhance relatability and resonance with the students, improving message understanding and reception. Future researchers may conduct longitudinal studies to track changes in the communication preferences of students over time. This can help researchers identify trends, shifts, and emerging preferences in how individuals prefer to receive information about this banning of single-use plastics policy. Further, the researcher may conduct comparative studies

across different institutions to explore variations in communication preferences and their underlying drivers. Comparing findings across diverse settings can help identify commonalities and differences in communication preferences and inform tailored communication strategies.

### Conflict of Interest

The author declares that he has not had any conflict of interest in the conduct of this study.

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